



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Memorandum

NHTSA-99-5218-5

Subject: Submittal of Meeting Minutes of the MVSRAC/Event
Data Recorder (EDR) Working Group to Docket
No. NHTSA-99-5218

Date:

JUN 21 2000

From: *H. Keith Brewer Jr.*
Raymond P. Owings, Ph.D.
Associate Administrator for
Research and Development

Reply to
Attn. of: NRD-01

To: The Docket

THRU: Frank Seales, Jr.
Chief Counsel

Attached are the meeting minutes of the Motor Vehicle Safety Research Advisory Committee (MVSRAC), Crashworthiness Subcommittee, Event Data Recorder (EDR) Working Group meeting held on October 6, 1999. Meeting history:

Meeting #	DATE
1	October 2, 1998
2	February 17, 1999
3	June 9, 1999
4	October 6, 1999

This working group is related to the following dockets:

MVSRAC Full Committee NHTSA-98-3928
MVSRAC Crashworthiness Subcommittee NHTSA-98-3887

On May 31, 1999, the charter for MVSRAC expired. The National Highway Traffic Safety Administration (NHTSA) Office of Research and Development (R&D) hopes to reconstitute the committee at some time in the near future. Until the committee is reconstituted, however, MVSRAC and all of its components including the Event Data Recorder (EDR) Working Group are no longer authorized. Since the purpose of the working group is to gather factual information



and not to develop consensus recommendations for NHTSA or any other Federal agency, the group's work may continue and need not be conducted as part of a sanctioned advisory committee. Accordingly, the EDR Working Group can continue its work under the guidance of NHTSA's R&D Office. Further details regarding MVSAC will be provided in the February 2, 2000 meeting minutes.

Research and Development requests that the minutes of this meeting be placed in the public docket.

Attachments

#

Motor Vehicle Safety Research Advisory Committee

Crashworthiness Subcommittee Event Data Recorder Working Group Meeting #4

FINAL Minutes Wednesday, October 6, 1999 9:30 AM - 4:00 PM NHTSA Headquarters Washington, DC

The Event Data Recorder (EDR) Working Group consists of a panel of government and industry officials appointed by the Motor Vehicle Safety Research Advisory Committee's (MVSRAAC) Crashworthiness Subcommittee. The fourth meeting of the EDR Working Group members and invited guests was held at the National Highway Traffic Safety Administration's (NHTSA) headquarters in Washington, DC. The purpose of the meeting was to: 1) Discuss insurance company issues; 2) Continue to learn about EDR systems; and 3) hold two breakout sessions related to the objectives of the working group. The meeting was co-chaired by John Hinch and Sharon Vaughn. The agenda for the meeting is included as **Attachment 1**.

1.0 Welcome, Introduction, Meeting Objectives, and Approval of Previous Meeting Minutes

The meeting was called to order by John Hinch, who welcomed everyone to the meeting. Sharon Vaughn was recognized as the meeting co-chair. After self introductions, Dr. Ray Owings, Chairman of MVSRAAC, welcomed the members and guests of the working group and presented some of his ideas related to event data recorders.

The minutes from the June 9, 1999, meeting were approved by the working group. The approved minutes and attachments for the June meeting were placed in the DMS, NHTSA 1999 docket number 5218, in October or November 1999. You can review this information using the DMS at <http://dms.dot.gov/>.

2.0 Insurance Company Issues

Sharon Vaughn lead the discussion about the insurance company views on privacy issues. She told the group that she contacted Pam Overton of Allstate Insurance. Ms. Overton stated that Allstate looked into the technology but they have not looked into ownership issues. She agrees that the position of the Agency (EDR data belongs to an owner of a vehicle) was logical.

Alan Maness of State Farm Insurance Company was present. State Farm has not addressed the issue of ownership or rights in data.

The Group discussed Chairman Jim Hall's testimony to the Committee on Commerce, Science, and Transportation, Subcommittee on Surface Transportation and Merchant Marine at the United States Senate regarding S. 1501, the Motor Carrier Safety Improvement Act of 1999.

Chairman Hall states in his testimony that “[T]he third item we would like to discuss is the need for protection of data obtained from event recorders. The need for on-board recording devices has been an issue on the Board’s Most Wanted list since May 1997.”

Volkswagen stated that any EDR technology that they have on vehicles will only be activated at the owner’s request. General Motors talked about their On-Star system.

Sharon agreed to put together a white paper on the Insurance Company view on privacy issues for the next meeting.

3.0 Presentations

There were three presentations made to the working group.

3.1 I-Witness

Gary Rayner made a presentation on a new aftermarket EDR device he invented. The device records forward view video, in car sound, and acceleration of the vehicle. The device is mounted on the windshield using 3 small suction cups, is about the size of a radar detector, and uses 12 volt power from the car system. A I-Witness unit was used to capture an actual on-road crash in the San Diego area. Gary demonstrated the device and showed the actual crash video he had captured. Additional information regarding this device is found in **Attachment 2**.

3.2 VDO North America

Tony Reynolds described Crash Recorders manufactured by VDO. These systems are can be designed for OEM and aftermarket use. They can record very detailed vehicle information, including vehicle acceleration, direction, and driver inputs. A copy of Tony’s presentation is found in **Attachment 3**.

3.3 EDR Uses in Massachusetts

Liz Garthe told the working group (WG) about possible EDR uses in the State of Massachusetts. She is involved in assessing after crash care, including crash to care facility transport. She described some recent work in this area, and related injury outcome to some basic physical parameters of the vehicle involved in the crash. Liz indicated that if the EDR could provide medical personnel some of these data, then injured occupants could receive more responsive treatments. A copy of Liz’s presentation is found in **Attachment 4**.

LUNCH BREAK

4.0 Breakout Sessions

4.1 Discussion of EDR Data Elements

Participants:

Dave Bauch	Ford
Michael Cammisa	IIHS
John Carney	WPI
Alex Damman	Honda
Liz Garthe	Garthe Associates
Kathy Gravino	DaimlerChrysler

Carl Hayden	FHWA
John Hinch	NHTSA, R&D
Tom Kowalick	Click, Inc
Joe Marsh	Ford
Sarah McComb	NTSB
Robert McElroy	FAI
Tom Mercer	GM
Gary Rayner	I-Witness
Doug Read	SAE
Tony Reynolds	VDO
Mary Russell	FAU
Lori Summers	NHTSA, R&D

Breakout Session Notes:

The breakout group spent its time reviewing the “top ten” list developed by the working group. For reference the “top ten” list (developed at the February 99 EDR WG meeting) is as follows:

1. Longitudinal and Lateral Acceleration and Principal direction of Force (PDF) - Low frequency
2. Location of Crash possibly using GPS within 10 meters
3. Seat belt status by seating location
4. Number of occupants and location
5. Pre-crash data, such as vehicle speed and other driver inputs (brake, steer, etc.)
6. Crash Time
7. Rollover sensor possibility to determine tripped and un-tripped rollovers
8. Yaw data
9. ABS, Traction control, Stability control information
10. Air Bag data, such as deactivation status, deployment time, etc.

After reviewing this list, the breakout group decided to develop categories that all elements could be placed in. The category list is as follows

1. Restraint system usage (air bag, belts, other)
2. Crash Pulse (delta v, deceleration, angular rates)
3. Vehicle/EDR ID
4. Speed
5. Driver Controls (Brakes, accel. etc)
6. Location
7. ACN (time, date, location, # occupants)
8. Environmental Conditions

There was not sufficient time to place all the data elements into each of these categories, so John Hinch and Joe Marsh agreed to perform this function prior to the next meeting, as well as record all the “NEW” completed data elements work sheets into a summary record for the working group.

4.2 Discussion of Privacy and Legal Issues

Participants:

Alan Alminas	State Farm, Claims Investigation
Bob Cameron	Volkswagen, Office of General Counsel
Alan German	Transport Canada, Collision Investigation Unit
Doug Gurin	NHTSA, Traffic Safety Programs
Mark Hargrave	FHWA
Dick Humphrey	GM
Minoru Kobayashi	Honda, Technical Research Division
Sharon Vaughn	NHTSA, Office of Chief Counsel

Breakout Session Notes:

When it comes to the collection and maintenance of data, NHTSA is obligated under the law to protect data if its release would violate the privacy rights of individuals. One of the primary sources for this obligation is the Privacy Act of 1974, 5 U.S.C. § 552a. Under the Privacy Act, Federal agencies are prohibited from disclosing any record that is contained in a system of records by any means of communication to any person, or to another agency, except pursuant to a written request by, or with the prior written consent of, the individual to whom the record pertains, unless disclosure is authorized pursuant to one of the exceptions outlined in the Act.

Under the Act, a “system of records” is a group of records under the control of an agency from which information is retrieved by the name of the individual or by some identifying number, symbol or other identifying particular assigned to the individual.

The purpose of the Privacy Act is to balance the government’s need to maintain information about individuals against the right of individuals to be protected against unwarranted invasions of their privacy stemming from the collection, maintenance, use and disclosure of personal information about them.

The Act focuses on four basic policy objections: restricting disclosure of personally identifiable records maintained by agencies; granting individuals increased rights of access to agency records maintained about them; granting individuals the right to seek amendment of agency records maintained about them upon a showing that the records are not accurate, relevant, timely or complete; and establishing a code of “fair information practices” which requires agencies to comply with statutory norms for the collection, maintenance and dissemination of records.

NHTSA maintains a number of Privacy Act “systems of records” and NHTSA is restricted from releasing information from these systems under the Act. There are also other statutes that relate to NHTSA’s responsibility to protect private information.

For example, NHTSA is authorized to collect statistical data on motor vehicle traffic crashes to aid in the development, implementation and evaluation of motor vehicle and highway safety countermeasures. Under this authority, the agency is not permitted to release this information in a manner that would identify individuals. In addition, the agency is required under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, to make available agency records that are requested by members of the public. However, the agency is authorized to withhold any information, the release of which would constitute a clearly unwarranted invasion of personal privacy.

During this discussion, Doug Gurin of NHTSA asked whether privacy rights, under the Privacy Act, apply to actions that individuals take in public places, such as on the highway.

Sharon Vaughn responded that the Privacy Act applies to systems of records. If information is maintained in a system of records, then the agency's ability to disseminate the information will be limited. Ms. Vaughn noted, however, that names and other personal identifiers are purged from records before they are ever received by the agency and maintained in many of its databases. (Examples include FARS and NASS.)

Bob Cameron asked, "What happens when an EDR is recovered from a vehicle and various people want to get access to that, whether it is for litigation, research, truck issues or the NHTSA? What are the rules regarding access to that? Are those governed by the Privacy Act?"

Sharon Vaughn explained that the recovery of an EDR would not necessarily be covered by the Privacy Act. For the Act to apply, a number of conditions would need to be met. For example, the information would need to be in the possession of a Federal agency, and maintained in a system of records (i.e., a group of records under the control of the agency from which information is retrieved by the name of the individual or by some identifying number, symbol or other identifying particular assigned to the individual). If the information were maintained in a system of records maintained by NHTSA, then the agency would be unable to provide it to an OEM, unless NHTSA had the permission of the individual or met one of the other conditions under the Act, under which a disclosure can be made.

Dick Humphrey from GM said Vetronix has been developing a kit that allows the laptop to interface with the SDM. It is due out in November. Best guess for SDM installation in cars is 25%.

Volkswagen's policy regarding EDRs is to get permission from the vehicle owner to have the EDR system turned on or off.

One OEM concern is ability to access the data in a timely period to correct defects in a vehicle. Bob Cameron asked why the NHTSA can not just send the EDR data along. Sometimes third party suppliers will interpret some of the data from the components in the car. The cars already records several functions because of existing memory chips.

NHTSA does not have an investigator in-house to seize data on site.

With OEM EDRs whoever owns the vehicle technically owns the data. For example, if the vehicle is leased the leasing company owns the data. In leasing agreements there are clauses where the leaser retains certain rights. For example clauses that state the leaser cannot tamper with certain instruments. Collaborating with leasing companies may provide valuable information through the EDRs.

Federal Highway Administration is interested in the data to improve the defects in the highway system by having a better knowledge in how the collisions are occurring.

If the EDR data was housed with the federal government other entities would not be able to access the EDR data without the consent of the individuals.

Alan Alminas: State Farm is interested in research and data from a claims standpoint. There is not a question about reliability, but to what extent an expert is needed to interpret data? Could

there be significant variations between plaintiff and defense between experts as to what certain data needs?

With downloading, data authenticity is a critical issue. Technology must be tamper-proof. When Volkswagen downloads data they run a test program first to make sure all the circuitry is working properly so it can tell them if something is damaged or destroyed. This tells Volkswagen if they are getting accurate data. With I-Witness' DriveCam (Video EDR), data taken directly from the EDR is authentic and tamper-proof.

4.3 Breakout Session Summaries

Both breakout sessions gave a short summary of their respective sessions activities.

5.0 Working Group Activities

- 5.1 Member list and Attendee list: Three new members were welcomed to the working group:
Liz Garthe representing the state of Massachusetts
John Mackey of Loss Management Services
Michael Cammisa of Insurance Institute for Highway Safety

The meeting attendance and current member list are found in **Attachment 5**.

- 5.2 Meeting Co-Chair for next meeting: Kathleen Gravino, DaimlerChrysler

- 5.3 Next Meeting: February 2, 1999, Washington, DC

- 5.4 The following topics were presented for discussion at the next meeting:
- a. Breakout sessions:
 - 1. What is the status of EDR technology? (Objective 1)
 - 2. Who are the customers for EDR data? (Objective 7)
 - b. Potential Presentations for Next Meeting
 - 1. Ford/GM Racing
 - 2. Manufacturers' review of EDR technology (fits well with objective 1)

6.0 Work assignments/action items

- 6.1 Data Elements
John Hinch will use the data format developed by the working group to compile a group wide data element format. The elements will be subdivided into the categories specified by the data element working group. The instructions for the "NEW" data format are found in **Attachment 6**. **If you do not have your revised data element form submitted, please complete it and return it to John Hinch as soon as possible, but at least by the end of December.** At the next meeting, John Hinch would like to discuss the Data Element Summary.
- 6.2 Ownership/Privacy

Sharon Vaughn and John Mackey agreed to put together a white paper, with inputs from the working group, on the role that insurance companies play in the legal issues associated to data ownership. This will be presented at the Feb meeting.

6.3 The WG agreed that breakout sessions were a positive step in the WG activities. Hence two more breakout sessions will be held at the next. These will work on Objectives 1 & 7. If anyone would like to head up one of these breakout sessions, please contact John Hinch.

6.4 During the meeting, several manufacturers expressed their desire that the manufacturers should discuss their EDR technology, including limitations. Each manufacturer should contact John Hinch prior to the meeting so these presentations can be scheduled. With the discussion of the Data Element Summary, the Insurance "white paper," and the breakout sessions scheduled for the afternoon, there will not be a lot of time for manufacturer presentations.

7.0 New Business

7.1 John Hinch indicated he participated in a TRB A2A04 summer workshop. One of the activities for the workshop was EDRs. A copy of the minutes from the Transportation Research Board workshop are found in **Attachment 7**.

7.2 Mary Russell and Bob McElroy presented a study being planned for southern Florida where EDRs will be used in conjunction with other research tools to collect data regarding motor vehicle crashes and aggressive driving. A copy of their handout is found in **Attachment 8**.

7.3 Several press stories were collected since the last meeting. A copy of these clips are found in **Attachment 9**.

7.4 Tom Kowalick presented the working group with a copy of NTSB Chairman Hall's statement on EDRs. A copy is found in **Attachment 10**.

Attachments

- 1 Agenda
- 2 Drive Cam Handout
- 3 VDO Presentation Slides
- 4 Massachusetts State use of EDR data
- 5 Attendance List and Updated Working Group Member List
- 6 "NEW" Data form Instructions
- 7 Minutes from the TRB Summer Workshop on EDRs
- 8 Florida Atlantic University Program for Collection of EDR Data
- 9 Press Clips and News Stories on EDRs
- 10 Chairman Hall Statement Regarding EDRs

Motor

Vehicle

Research

Advisory

Committee

Chairman

Secretary

Members

Staff

Advisors

Guests

Other

Notes

Agenda

Minutes

Reports

Comments

Decisions

Actions

Follow-up

Summary

Conclusions

Recommendations

Appendix

EDR

Meeting #4

October 6, 1999

Event
Data
Recorder
Working Group

AGENDA

Event Data Recorder Meeting #4

9:30 a.m. - 4:00 p.m. Wednesday, October 6, 1999

Room 6200-04 NASSIF Building; 400 7th Street S.W.; Washington DC 20590

Working Group Objective

Facilitate the collection & utilization of collision avoidance and crashworthiness data from on-board EDRs.

Meeting Objective

Fourth meeting objectives: 1- Discuss Insurance Company Issues; 2- Continue to learn about EDR systems; & 3- Breakout sessions

Morning

- 9:30 Welcome and Introductions (John Hinch and Sharon Vaughn)
→ Sign-up for afternoon sessions
→ Introduction of new members
Liz Garthe (Massachusetts)
John Mackey (LMS)
Michael Cammisa (IIHS)
→ Hello from Ray Owings
- 9:45 Review and Approval of June 9, 1999, Meeting Minutes (John Hinch)
- 10:00 Discussion of Insurance company legal issues (Sharon Vaughn and John Mackey)
- 10:30 Break (sign up for afternoon sessions)
- 10:45 Aftermarket EDR system (Gary Rayner)
- 11:10 VDO North America (Tony Renolds)
- 11:35 Presentation on EDR activities in the State of Massachusetts (Liz Garthe)
- 12:00 Lunch

Afternoon

Breakout Sessions - 1.5 hours

I - What data should be selected for recording?

II - Who owns the data?

III - Who are the customers for EDR data?

1:00 - 2:30 Session Discussions

2:30-2:45 Afternoon break

2:45 - 3:00 Summarize Sessions

3:00 - 3:30 Breakout sessions summaries (10 minutes each)

3:30-4:00

Working Group Business

①NTSB

- Recommendations for Recorders on Motor Coaches and School Buses
- New Recorder Symposium

②Florida EDR Study (John Macky)

③TRB -A2A04 report (John Hinch)

④Next Meeting (WG Members)

- Date (possibly Feb 2, 2000)
- Topics
- More Breakout Sessions??
- Presenters
- Co-Chair for next meeting

EDR MEETING #4
OCTOBER 6, 1999
GARY RAYNER PRESENTATION ON AFTERMARKET EDR



About DriveCam

DriveCam is designed to help fleet vehicle operators, researchers, and consumers improve safety and security by increasing the sophistication and effectiveness of identifying, diagnosing, apprehending, and reporting crash and road incidents.

- DriveCam has several unique characteristics such as a digital video replay of everything the driver could see, hear and feel (G-forces) in the 10 seconds before, during, and 10 seconds after a crash or incident.
- DriveCam is simple to install and operate by any person.
- DriveCam cost effectively fills a very real need to reduce insurance fraud, have a nonbiased replay of events on the road, and to capture any video segment of interest such as road rage or other criminal activities.
- DriveCam addresses a fundamental need shared by the government and commercial market to improve traffic safety, lower liability costs, reduce frequency of crashes and crash related deaths and injuries.

Patents are pending.

A few months ago while driving on the freeway Gary captured an amazing scene. The car in front began wobbling then lost its tire! Gary Rayner pushed the panic button on DriveCam as the tire careened across the freeway hitting a minivan traveling the opposite direction. The tire punctured the front windshield barely missing the driver then bounce eighty feet in the air landing on the side shoulder. The two women were fortunate to be alive. DriveCam captured it.

Gary dialed 911 immediately after and drove to the opposite side of the freeway to show the officer what had happened on a mini portable TV. Gary easily disconnected DriveCam (less than ten seconds) and plugged it into the video and audio outputs on the TV and replayed the whole scene to the officer. He was amazed and said that every car should have one. It would make his job so much easier!

DriveCam was designed with the non-technical person in mind according to the KISS principle. DriveCam is simple to operate, install, view and evaluate the data, tamperproof, and durable. DriveCam puts the viewers in the driver's seat at the time of the accident or road rage event by recording everything the driver could see, hear, and feel in video, audio, and g-forces.

DriveCam

DriveCam is an Automobile Video Event Data Recorder (VEDR) that was designed to be miniature, inexpensive, and very simple to install - less than 10 seconds! It has achieved this by combining all of the required sensors into a single small VEDR, the size of a pager and by using innovative design techniques.

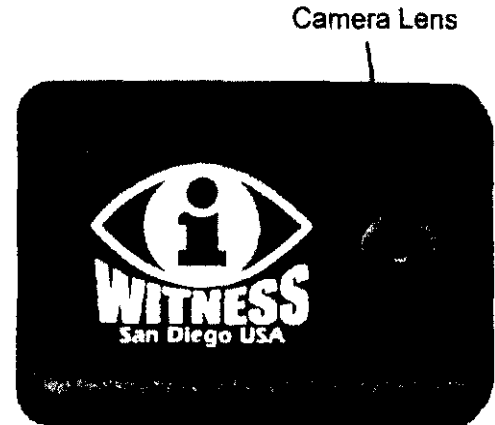
DriveCam continuously records exactly what the driver sees (in video), hears (in audio), and feels (in G-forces) in real time. When DriveCam is triggered, it records 10 seconds prior to, including, and 10 seconds after a crash. Being digital, the system has no moving parts so it never wears out, is maintenance free, and can be used repeatedly. DriveCam data is tamperproof.

DriveCam has a very sensitive video camera that adjusts well in both daylight and at night. In addition, an internal lithium battery continues to provide power during recording if the main vehicle power is cut during the crash.

A green indicator light shows that the system is 'armed' and operating correctly. After DriveCam has been triggered, the indicator light will turn red and begin blinking. Once DriveCam has recorded the event the light remains red. Manual triggering can be used to capture road rage, accidents involving other motorists, or carjacking by pressing the 'panic button.'

Installation is as simple as pressing DriveCam onto the windshield close to the rear view mirror. The plastic suction cups on DriveCam keep it firmly mounted. In fact, the complete unit can be installed or moved from car to car as easily as a radar-detector. Any vehicle can have DriveCam installed by a non-technical person in less than ten seconds! For power, it plugs into the cigarette lighter power socket. Alternatively, the unit may also be wired directly into the vehicle's power.

The video, sound, and G-forces relating to the crash can then be replayed on a standard television, which then can be recorded on videotape or put on a hard drive! Pressing the play, rewind, or forward buttons on DriveCam operates it like a VCR. An onscreen display



Front View

Figure 1: DriveCam



Forward / backward
G-Forces accurate to
0.01G's

Lateral G-Forces
accurate to 0.01G's

Time before / after
impact.

Figure 3: Onscreen Playback View of I-Witness Recording

shows in real time the G-Force measurements experienced with audio and video in real time.

Why use DriveCam?

Current Problems	DriveCam solutions
Eyewitness testimony is unreliable.	Accurate account of everything the driver sees, hears, and feels 10 seconds before, during, and 10 seconds after the crash.
Little driver accountability.	Drivers in all vehicles are encouraged to drive more responsibly, since they can be held accountable when incidents occur.
Road rage is rampant with little protection or recourse when offenses occur.	Provides visual record of the incident and opportunity for follow up with the authorities.
Carjackers and Hit and Run drivers often get away.	Obtain a photograph of the offending vehicle, record voice of car-jackers.
Police reports have limited information.	It serves as a video, audio, and g-force notebook to enhance police and insurance companies' crash reports.
Accident reconstruction techniques are often limited with skid mark measurements and damage assessments.	Accident reconstruction from the human perspective and accurate measurements of distances and speed of all vehicles in field of view with video.
Current black box systems are very expensive and difficult to install and maintain.	DriveCam is an inexpensive logical alternative that has all of the necessary functions in a self-contained system. Installation is very simple.
There is difficulty in assessing the extent of injuries at the scene of an accident.	Emergency personnel may also review the recording at the scene with any portable TV to identify the intensity of a crash, which will help catch serious injuries that may have been overlooked.
There are usually conflicting testimonies of how the crash happened.	Have an actual 'DriveCam'corder that may be replayed in court if needed. It reduces bias and doubt.
Staged accidents, insurance fraud, exaggerated claims can be difficult and costly to prove.	DriveCam is designed to reduce or eliminate auto insurance fraud, provide an easily understood and irrefutable video and audio playback of "exactly what happened."
Real time accident video is very rare.	The real time DriveCam can be used as a training tool to study crashes and improve highway safety through driver education.

DriveCam can enhance prosecution of a DUI, traffic violation, road rage, and insurance fraud. It can reduce the time and costs of court appearances. In the case of fault, it can aid in avoiding raised insurance premiums or lawsuits.

What compels customers to buy DriveCam? Money, and peace of mind. People are interested in DriveCam when it has the ability to affect their wallet. Many people have businesses or personal assets to protect, and do not want to lose these assets through needless negligence, fraud, improper blame, or damaged property.

Statistics

Each year in the U.S., 5 million Americans are injured in 17 million crashes involving 27 million vehicles. Among those 27 million crash-involved vehicles, approximately 250,000 Americans suffer seriously life-threatening injuries -- at unpredictable times and places. (NHTSA, The Economic Cost of Motor Vehicle Crashes, 1994, DOT HS 808 425, July 1996, pp. 1, 7, 8, 9, 59).

In 1997 there were 41,967 vehicle deaths. In 1996 there were 102,955 persons involved in fatal accidents and 3,511,000 persons injured according to FARS (Fatal Accident Reporting System). Teenage drivers are

the highest risk group. Monetary costs exceed \$150 billion (National Transportation Safety Board). Every person in America bears the economic cost of motor vehicle crashes--on average, \$580 a year.

Current Problems	DriveCam Solutions
Traffic fatalities are one of the leading causes of death. Serious and permanent injuries are common.	Fatalities and injuries can be reduced by improved driver education gleaned from studied crashes. Irresponsible driving is discouraged.
Causes of crashes may involve multiple factors such as road or vehicle design, but may go undetected with traditional investigation techniques.	G-Force readings can be carefully studied to determine exact tire traction, speed, and vehicle handling. Weaknesses can be identified and rectified.
In many multi-car crashes, it is difficult to ascertain who is responsible - often resulting in 'shared' responsibility.	Clearly see the events leading up to the crash and who is responsible.

What are the financial benefits of DriveCam?

Current Problems	DriveCam Solutions
According to the National Insurance Crime Bureau (NICB) \$0.17 to \$0.20 of every dollar spent on auto insurance goes towards fraudulent claims. This means that Americans pay \$100 to \$300 more for auto insurance due to fraud or exaggerated claims.	Provide irrefutable evidence of staged accidents or exaggerated claims. Public awareness of installed systems will curb staged accidents.
Lawsuits are very expensive.	The I-Witness system can greatly aid in the defense or offense in a court case. The data is intuitive it is easily understood by anyone off the street which is advantageous for a jury.
Accident Reconstruction Experts use techniques to gather data 'after the accident.'	Everyone's job is made easier and accident reconstruction is more accurate using DriveCam. The evidence will be self-explanatory in 'real time.'
The current most commonly used methods in determining fault in traffic crashes are police reports and telephone interviews with the drivers.	DriveCam is better than a perfect human eyewitness, since it allows others to see the same thing repeatedly in realtime.

Ultimately it is anticipated that insurance companies will act by reducing rates to DriveCam installed customers. If insurance companies give a 5% discount on premiums (Typical for airbags or ABS brakes) the payback time from direct insurance savings would be 3-5 years. DriveCam could potentially pay for itself in one to two years.


DriveCam is ideal for installation in all light to medium vehicles and is affordable. DriveCam is user friendly because it is: inexpensive, unobtrusive, simple to install, durable, tamperproof, and miniature. Customers receive accurate, real time crash data that is easy to interpret and additional security.

There are many benefits that DriveCam will provide in the short and long term: Researching collision data for research, reduction in lawsuits, lower insurance premiums, promote and encourage conscientious driving, data to improve vehicle design internally and externally. Other benefits include being able to see what the driver could see, hear, and feel in a crash. DriveCam provides the exact speed measurements of all objects in field of view with the video record. Road rage can be recorded by a click of a button. G-force measurements can be helpful in assessing injuries and crash records can reveal insurance fraud. Financial benefits will be derived from driver accountability, reduced fraud, determining fault in insurance claims and court cases, and streamlining accident reconstruction. Companies, government agencies, and research institutes who access data will derive benefits of accurate accident reconstruction data in a simple and cost effective way.

Furthermore, I-Witness' software engineering team is currently developing a program that will be the "Adobe Acrobat" of black box/ EDR recorders. What this means is that this program will be able to read

EDR information from the several EDR software programs already out there and put it into one common readable format. This will greatly simplify databasing of crashes with a standard file format that will allow researchers around the world to download crash files over the internet and view them with a one familiar program. This software program is called Hindsight 20/20.


Based on polls taken, I-Witness has decided to leave an erase button option for consumers because of privacy and data ownership issues. Commercially, the fleet operators will have the option to erase the data. Whoever owns DriveCam owns the data in DriveCam and has the choice to disseminate the data how they wish.



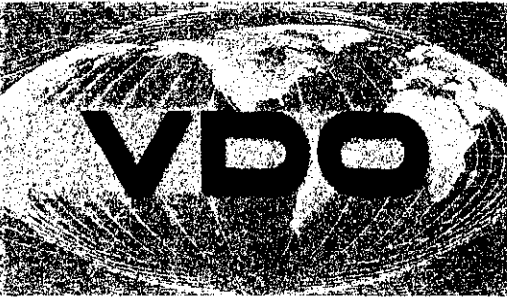
National Highway Transportation Safety Administration

EDR Working Group
October 6, 1999
Tony Reynolds - Product Manager


VDO North America LLC
VDO



Development and Supply Partner to
Automobile Manufacturers Worldwide




VDO North America LLC
VDO



(millions)

Worldwide Automotive Production



1998: 62.1 million VDO
 2000: 62.2 million VDO

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VDO Kienzle Trading






- **Automotive Electronic Control and Fuel Systems:** Optional Instrumentation, Replacement, Telematics Terminals, Sender Units and Sensors, Immobilizers/Alarms, Tracking Systems, Radio-Remote Controls, Automatic Road-Speed Limiters, Tempomats/Cruise Control, Electronic Gas Pedals, Tachographs, Fleet-Management Systems, Accident-Data Recorders/Evaluation, Workshop-Testing Equipment
- **Marine Electronic Instruments and Systems for Engine Control and Navigation**

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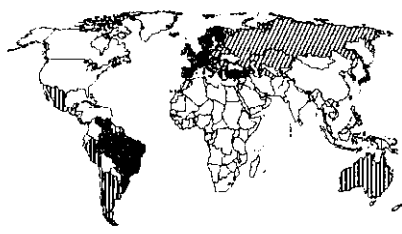
Users of EDR's

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VDO

Tachograph Legislation Worldwide





- ☑ Full Legislation
Western Europe,
Turkey, Israel,
Japan, South Korea,
Brazil, Venezuela
- ▨ Full Legislation for
Border Crossing
Transport
AETR-Countries
- ▤ Partial Legislation
or in Progress
Mexico, Argentina,
Chile, Peru, Uruguay,
Singapore, Australia
- No legislation

Sources: BMW, V&V
Status: April 1999

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The main Purposes of EDR

- Improvement of Road Safety
- Harmonization of Competitive Conditions
- Accident Analysis
- Fleet Management

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Which EDR's are Available?

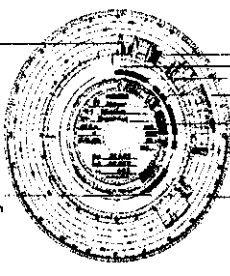
- Tachographs
 - traditional
 - digital
- On-board Computer
- Accident Data Recorder

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Tachograph Systems

Diagram Charts





Road speed

Additional styles for fuel consumption (with Fuel Consumption Recorder ECM) or filling, mixing and coating equipment etc.

Times

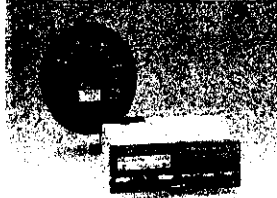
- Working time
- Driving time
- Rest periods
- Other periods of work

Distance

Engine speed (recorded on the back of the chart)

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New Tachograph Generation **Digital Tachograph DTCO 1380**

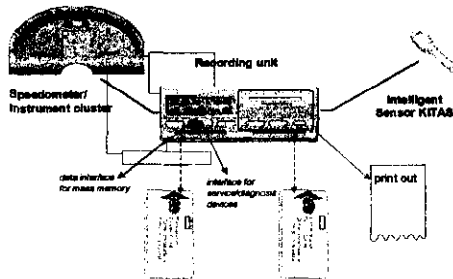


- System solution comprising display (speedometer/cluster matr.), registration and sensor (KITAS)
- Mass memory for digital registration of driver and vehicle related data
- Registration unit in DIN 77386 format with integrated printer
- Interfaces for CAN, Diagnosis, 2 driver cards and data transmission to a laptop

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New Tachograph Generation **DTCO Components in the vehicle**



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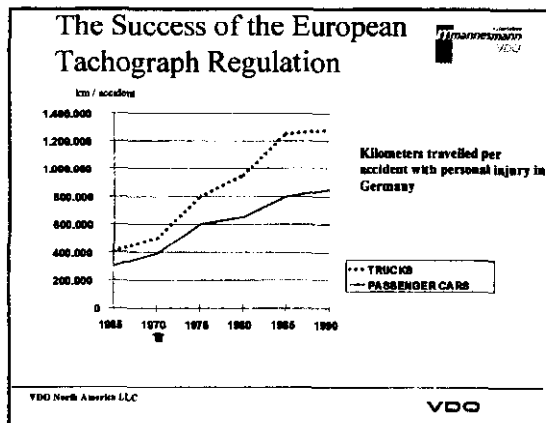
New Tachographs **DTCO: Printout**

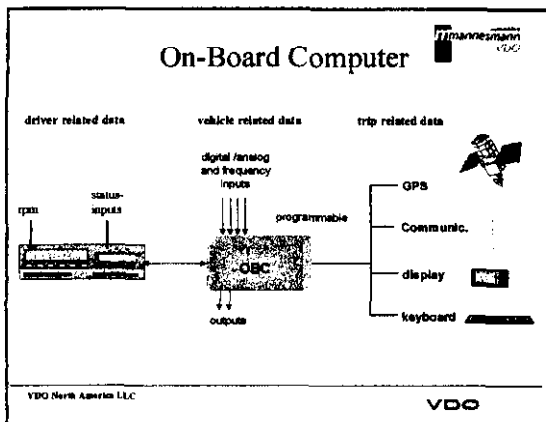


- Identification of driver and control officer**
 - Date & hour
 - Driver's name and controller's name
 - Place of control
- Registration of driver activities**
 - Driving times
 - Rest times
 - Times of availability
- Registration of driver activities daily summary**
 - Total driving duration
 - Total distance travelled
 - Signature on driver and control officer

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Fleet Manager 200 Components

FM200 kit:

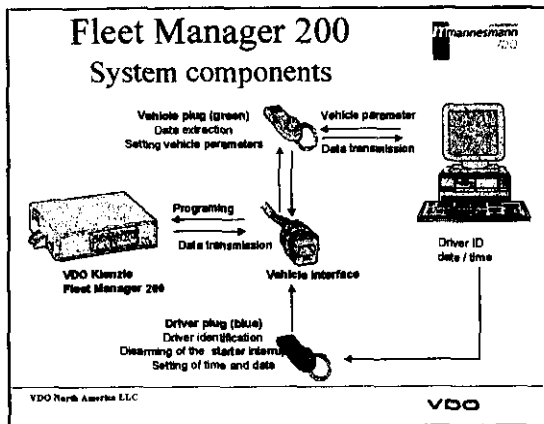
- OBC
- Wiring harness
- Vehicle interface
- Vehicle plug 256KB
- Driver plug
- Operating manual hardware

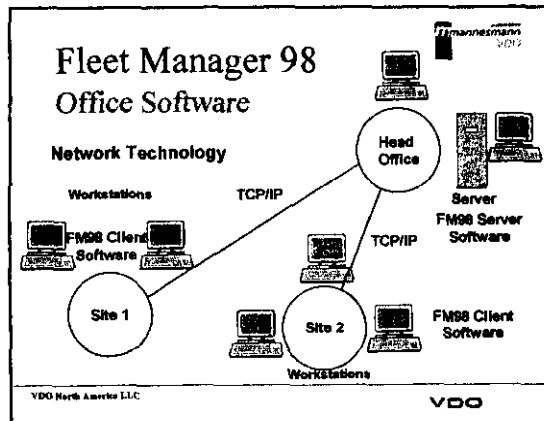
Optional Equipment:

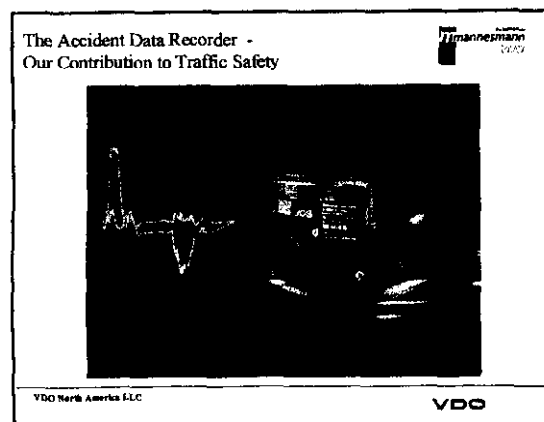
- Metal housing

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Milestones

1995 Start of IASch in D. A., Benelux and further (European) countries

1993 Start of IASch in special markets

1992 Piloting

1991 First Prototypes in field tests and projects

1987 First working samples of an electronic Accident Data Recorder

1983 Analysis based on requirements of the "Deutscher Verkehrsgerichtstag"

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Commercial use of the Accident Data Recorder
Infrastructure Based and Technical Know-How

Comprehensive UDS infrastructure and technical know-how:

- Belgium
- Germany
- France
- Great Britain
- Luxembourg
- Netherlands
- Austria
- Switzerland
- USA (not shown on map)

Countries in other countries are being qualified.

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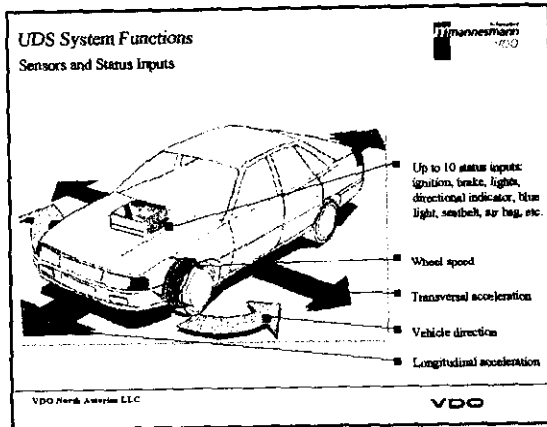
VDO

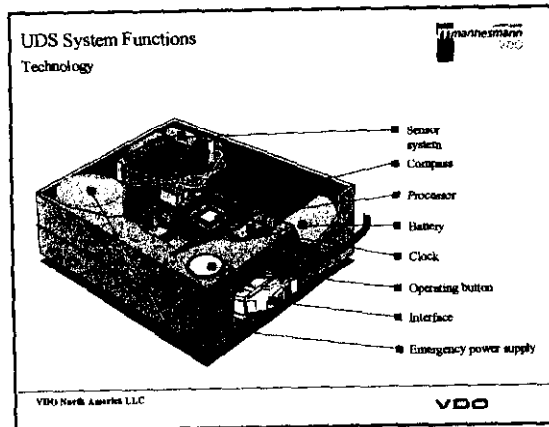
UDS System Functions
Overview over functions

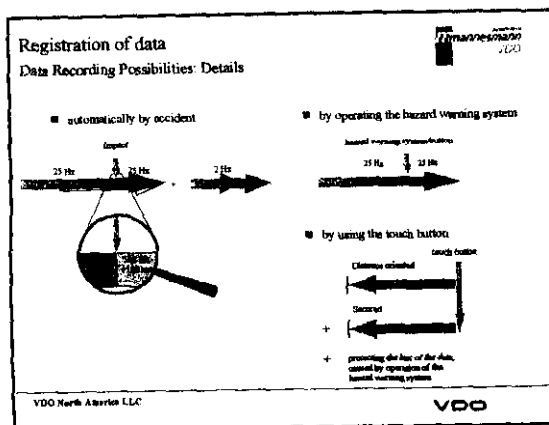
Voltage signals
Status signals
Distance Pulse
Communication

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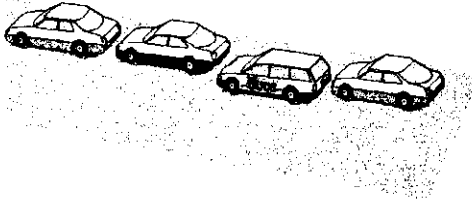






Examples of Accident Analysis

Serial Collision

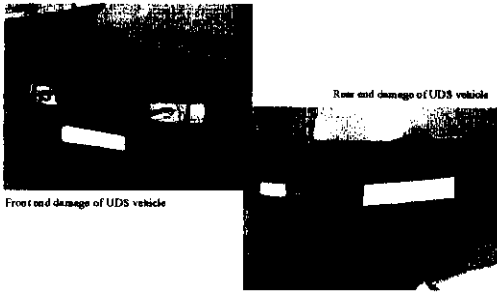


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Examples of Accident Analysis

Serial Collision - pictures of damages



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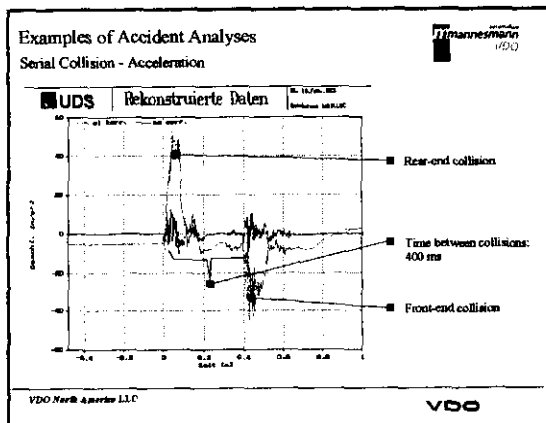
Examples of Accident Analysis

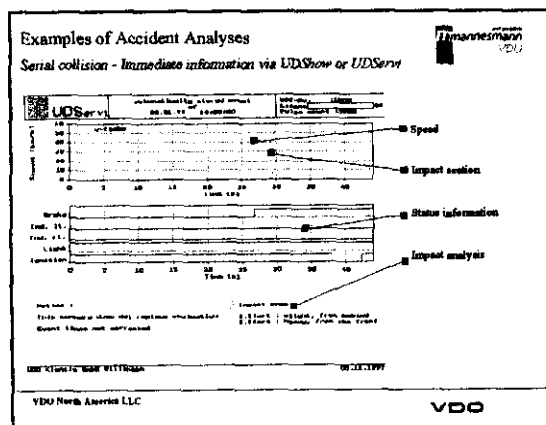
Serial Collision - Questions

- ▶ Who impacted in first
- ▶ Collision speed(s)
- ▶ Drivers reaction (braking) yes / no
- ▶ Start of braking
- ▶ Initial speed(s)
- ▶ Change of speed during collision
- ▶ Time of stand still or remaining braking distance

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Marketing for the Accident Data Recorder
Automobile Manufacturers

- Negotiations with all automobile, utility vehicle, and bus manufacturers are presently being carried out.
- The UDS is a part of the standard equipment of Neoplan buses.
- The following bus manufacturers
EVO-Bus
Mercedes
Setra
Volvo
Scania
MAN
Vna Hool
Bova

deliver the UDS as works when requested by the customer.

VDO North America LLC VDO

Studies & Results



- SAMOVAR (Safety Assessment Monitoring On Vehicle with Automatic Recording) Research Program: European Union Drive Project V 2007
- Great Britain, Belgium, the Netherlands
 - 9 Fleets
 - 341 UDS vehicles - 509 control vehicles
 - 12 Month study & analysis
 - Accidents reduced 28.1% and costs by 40%

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Thank You for Your Attention!!

Give me your card for more information,
a video, or a demonstration.

VDO North America LLC

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Attachment 4 not included for this book.

Will be included in the next book sent.

MEMBER LIST MVSAC WORKING GROUP on EVENT DATA RECORDERS
September 9, 1999

Name	Company	Phone	Fax	Company Address	e-mail
David Bauch	Ford	313 322-3884	313 390-5144	Advanced Vehicle Tech #3, 2A149 Rm 2122, Mail Drop 3010, Ford Motor Company, Dearborn, MI 48121	dbauch@ford.com
Robert Cameron	VW	201 894-6245	201 894-5498	Volkswagen of America, 600 Sylvan Ave, Englewood Cliffs, NJ 07632	Robert.Cameron@vw.com
Michael Cammisa	IIHS	703 247 1568	703 247 1587	1005 N. Glebe Rd.; Arlington, VA 22201-4751	mcammisa@iihs.org
John Carney	Worcester	508 831-5222	508 831-5774	Worcester Polytech. Institute, 100 Institute Rd, Worcester, MA 01609-2280	jfc@wpi.edu
Liz Garthe	Garthe Associates	781 631 1553		7 Skinners Path # B; Marblehead, MA 01945-4614	garthe@ibm.net
Charlie Gauthier	NASDPTS	703 734-1620	703 734-1868	1604 Longfellow St, McLean, VA 22101	
Alan German	Transport Canada	613 993-3609	613 991-5802	Road Safety and Motor Vehicle Regulation Directorate; Transport Canada; PO Box 8880; Ottawa Postal Terminal; Ottawa, Ontario, Canada K1G 3J2	GermanA@tc.gc.ca
Kathleen Gravino	DaimlerChrysler	248 576-3613	248 576-7918	CIMS 483-05-10; 800 Chrysler Drive, Auburn Hills, MI 48326-2757	kmg15@daimlerchrysler.com
Martin Hargrave	FHWA	202 493-3311	202 493-3417	FHWA, HSR-20, Turner Fairbanks Highway Research Center, 6300 Georgetown Pike, McLean, VA 22101-2296	martin.hargrave@fhwa.dot.gov
John Hinch	NHTSA-R&D	202 366-5195	202 366-5930	NHTSA, NRD-01, 400 7th St SW, Washington, DC 20590	john.hinch@nhtsa.dot.gov
Thomas Kowalick	Click, Inc.	910 692-5209	910 695-1566	560 East Massachusetts Ave, Southern Pines, NC 28387	kowalick@pinehurst.net
John Mackey	Loss Management Services, Inc.	516 226-7359	516 719-8882	36 Surf Road, Lindenhurst, NY 11757	Stlukech1@AOL.COM
Tom Mercer	GM	810 986-3552	810 986-3547	GM Tech Center, Mail Code 480-111-S29, 30200 Mound Road, Warren, MI 48090-9010	LNUSTC1.ZZMYST@gmeds.com
Lori Niro	Honda	937 645-8856	937 645-6344	Honda R&D Americas, Inc., 21001 State Route 739, Raymond, OH 43067-9705	lniro@oh.hra.com
	TRB			Transportation Research Board, NRC, 2101 Constitution Ave, Washington DC 20418	
Jeya Padmanaban	AAAM	650 941-5304	650 941-2132	35 Sylvian Way, Los Altos, Ca 94022	jeyap@aol.com
Vernon Roberts	NTSB	202 314-6483	202 314-6406	NTSB, HS-1, 490 L'Enfant Plaza East SW, Washington, DC 20594	robertv@ntsb.gov
Wilbur C Rumph	Blue Bird Bus	912 822-2368	912 822-2471	Blue Bird Body Co.; PO Box 937; Fort Valley, GA 31030	
Brian Shaklik	Navistar	219 428-3205	219 428-3501	Navistar Technical and Engineering Center, 2911 Meyer Rd, Fort Wayne, IN 46801	Brian.Shaklik@Navistar.com
Greg Shaw	UVA	804 296-7288	804 296-3453	UVA Auto Safety Lab, Charlottesville, VA	cgs5w@virginia.edu
Sharon Vaughn	NHTSA-NCC	202 366-1834	202 366-3820	NHTSA, NCC-30, 400 7th St SW, Washington, DC 20590	svaughn@nhtsa.dot.gov

(1)

EDR MEETING # 4, October 6, 1999; Washington DC		
NAME	COMPANY	PHONE
John Hinch	NHTSA R&D	202 366 5195
Gary Rayner	I-Witness Inc.	619 282-8777
Bob Camen	VOLKSWAGEN	201-594-6245
KATHY GRAYNO	DAIMLER CHRYSLER	248-576-3613
Tom Mercer	GM	810 986-3552
Liz Gault	Gault Associates (CHSIS - 202-555-1234)	781-631-1553
Ray Owings	NHTSA R&D	202-366-1537
Joe Marsh	Ford	313-390-2171
David Beach	Ford	313-322-3884
Minoru Kobayashi	Honda	248-304-4888
Sophia Rayner	I-Witness Inc.	619-282-8777
Robert McElroy	FAI, INC.	561-995-6781
Tony Reynolds	VDO North America	540-723-8015
DOUGLAS READ	SAE International	202-416-1649
MARY RUSSELL	ARMON ATLANTIC UNIVERSITY	561-297-2328
GARY POLLAK	SAE	724 772 7196
TOM KOWALICK	CLICK INC ^{TRANSPORT SAFETY}	910 692 5209
Alan Maness	State Farm	202 466 5208
Alex Damman	Honda	937 645 8857
PAT BOYD	NHTSA	202-366-6346
Carl Hayden	FHWA	202-366-2176
Martin W. Hargrove	FHWA	202-493-3311
MICHAEL CAMMISA	IIHS	703-247-1568
Richard F. Humphrey	GM - OCOFFICE	202 775 5071
Doug Gurin	NHTSA Traffic Safety Programs	202-366-5594
GERALD STEWART	NHTSA ^{safety} performance lab	20-366-5268

2

EDR MEETING # 4, October 6, 1999; Washington DC

[illegible]

9/16/99

NHTSA- EDR Data Element Selection - *Instructions for Expanded Form**

PRIORITY - Includes both 'Importance' and 'Urgency/ when needed' aspects

- Categories - Try to identify the TOP 10 by limiting the number of 'KEY' items to 10
4- KEY (critical, must have), 3- HIGH, 2- MEDIUM, 1- LOW, 0- ZERO (Not needed)

DATA ELEMENTS - Defines event data element content to be recorded

- Add data elements of 'Medium' or higher PRIORITY.
- Add further details/ refinements to existing data elements as needed;
For example, expand 'Number of Occupants' to FR, FC, FL, or Back Seat Occupied?

PRACTICABLE - Already in some vehicles? How practical? Major technical or cost issues?

- Categories:
 - eXists - Data Exists in some production vehicle EDR modules on-the-road today
 - High - High; Sensors exist in some production vehicles but data not available to EDR (like, no common data bus or linked protocol))
 - Med - Medium; Data / sensors exist, but not in current production vehicles
 - Low - Low feasibility; Data / sensors do not exist or are not currently available
 - O - No feasible way currently known to implement
 - Special equipment available for fleets (like commercial, EMS, race, research vehicles)

WHEN POSSIBLE - Time when data element might be available in some production vehicles

- Categories - For completion by OEM & technology suppliers:
 - eXists - Exists on some current production vehicles on-the-road today
 - Near - Near-Term, about 6 months
 - Short - Short-Term, within 4 years
 - Long - Long-Term, beyond 4 years
 - O - Technology not expected in foreseeable future, Use with not practical above

EVENT PHASE - For what time phase(s) during event is data element recorded?

- Four Categories - Enter in Priority sequence:
 - PreCrash phase:
 - Travel (like driving actions/ log)
 - Running-in (pre-impact conditions)
 - Impact phase (includes running-out phase)
 - PostCrash (all traffic units at rest)

CUSTOMERS - Customer categories also reflect potential data applications

- Categories - Enter in Priority sequence
 - Causation - Crash Causation (driver actions); Culpability (insurance, legal, police)
 - Emergency - Emergency response; crash notification
 - Highway - Highway design
 - Injury - Injury causation/ risk and/or biomechanics research
 - Reconstruction - Reconstruction of crash dynamics
 - Special applications in limited fleets (like commercial, EMS, race, research vehicles)
 - Threshold - Threshold detection and/or crash sensor design

PURPOSE - Expand description of likely purposes/ uses/ applications

- All comments provided will be compiled into one enlarged box.

* Selection Form expanded to include PRACTICAL, EVENT PHASE and CUSTOMER

NOTE: Comments/ expansions on above category definitions are welcomed.

**EDR WORKSHOP
Roadside Safety
Meeting Notes**

Meeting Attendees

**John Hinch
Ta-Lun Yang
Jack Carney
Thomas Turbell
Gene Buth
Eric Keller
Dean Alberson
Arthur Dinitz
Joe Jones
John La Turner**

**August 3, 1999
1-5pm**

Discussion of EDR needs specific to ROADWAY safety

1- Relate vehicle and occupant outcomes.

accel traces -

rate data

order of data - long, lat, yaw, roll

2- Locate crash site

3- Impact speed

4- Pre impact data -

brakes

steering (?)

5- Injury data

6- VIN

7- Event History

8- Occupant position and seat belt use

9- PRNDL data

10- Outside temp

11- Telephone active

Data Elements

Each member of the breakout session ranked, from 1 to 10, their top ten data elements from a set of data elements. The individual scores were combined and the top 25 elements were ranked based on highest rank. The following presents the results of this exercise.

Rank	Data Element
1	Crash pulse - longitudinal (Acceleration measurement)
2	Vehicle speed
3	Crash pulse - lateral (Acceleration measurement)
4	Delta-V - longitudinal (Change in Velocity)
5	Delta-V - lateral (Change in Velocity)
6	Yaw rate
7	Brake status - service
8	Principal Direction of Force
9	Roll angle
10	Air bag status
11	Wheel speeds
12	Automatic collision notification
13	Traction coefficient (estimated from ABS computer)
14	Collision avoidance, braking, steering, etc
15	Belt status - each passenger
16	Location - GPS data
17	Engine throttle status
18	Brake status - ABS
19	Steering wheel angle
20	Air bag inflation time
21	VIN
22	Environment - temp
23	Engine RPM
24	Time/date
25	Environment - ice

After review of outcome, group felt that elimination of delta v's and PDOF was possible because this data could be determined from the basic acceleration data.

Of note: When you visit with most highway safety engineers, they will tell you that location is very important to their needs, but in this exercise, location ranked 16.

Also Reviewed and Discussed

How to Use Information

- Crash Reconstruction
- Crash Pulse
- Crash Delta-V Calculation
- Crash Duration

Data Retrieval Process

- General Procedures
- NHTSA Specific
- GM System

EDR Issues

- Legal
 - NHTSA position
 - FHWA position
- Privacy
 - Who owns the data
 - Owner - Insurance Co. - Rented and Leased Vehicles

Findings by the group:

- 1- ALL agreed that data belongs to the vehicle owner
- 2- Grant Immunity to the owner to get access to data

Outcome

Group would like to recommend to committee that test houses should evaluate EDR when possible

NHTSA Activities

- Data Collection
 - Storage in NHTSA Data Bases - SCI, NASS-CDS, & CIREN

MVSRAC

- Working Group on EDR
- Membership includes TRB and FHWA

8 Objectives

1. What is the status of EDR technology?
2. What data should be selected for recording?
3. How should the data be collected & stored?
4. How should the data be retrieved?
5. Who should be responsible for keeping the permanent record?
6. Who owns the data?
7. Who are the customers for EDR data?

Outcome

Recommend that A2A04 committee provide some details to the MVSRAC WG on its Roadside needs

8. Demonstration of EDR technology.

WEB Site

www.dms.gov
docket number 5218

Future EDR Data Analysis

Injury Prediction
ACN - ACN presentation

SUMMARY

- 1-EDR data will be extremely valuable to the ROADSIDE community.**
- 2-Help determine test parameters (speed)**
- 3-Valuable for in-service/field evaluations - feedback from the users**
- 4-Could provide a method to link idealized crash tests and injury prediction to field outcomes**
- 5-Standardized retrieval systems would be useful**

EDR Working Group Meeting

Washington, D.C.

October 6, 1999

**EDR technology is not the next step in highway safety.
It is a *quantum leap* ...**

**Recorder technology has been used in the airline industry
successfully for post-crash analysis of data.**

***EDR systems can now be applied to private passenger
transportation for the purposes of post-crash analysis as well as
driver performance assessment of risk and crash prevention.***

**An objective method is needed to guide public policy
recommendations related to driver competency.**

**Florida EDR Team
Florida Atlantic University**

**Transportation Research Center
Boca Raton, Florida**

**Dr. Mary Russell
Director, TRC**

**Dr. Robert McElroy
Associate Director, TRC**

Date: October 6, 1999
To: EDR Working Group
From: Florida EDR Team
Re: Executive Summary

A variety of relevant, high-profile highway safety issues pertaining to EDR technology applications can be addressed by a multidisciplinary team of professionals and a systems approach to a virtual plethora of transportation applications and challenges including:

Driver performance

- Aggressive driving
- Identification of high-risk drivers
- Injury risk & prevention

Commercial transportation

- Trucking & truck drivers
- Fleet management
- Bus transit

Vehicle performance

- Design issues

Insurance issues

- Cost of injury claims
- Fraud

Federal, state & local government public policy issues

- Safety impact on highway crashes & injuries
- Highway design strategic planning & policy
- Development of EDR national & international standards
- ITS planning & policy
 - Automatic collision notification
 - Point of contact database linkage
- Data usage for crash avoidance recommendations
- Recommendations for evaluation of driver competency
- Personal accountability
- Confidentiality issues
- Judicial options for chronic offenders

EDR technology research properly applied can address each of the above identified challenge areas. Our research team is prepared to address these vital contemporary issues with your support and assistance.

Florida EDR Team

Our team includes engineering, education, industry, insurance, & health care.

Education:

Florida Atlantic University
University of Miami
AARP
Safety Council of Palm Beach County

Insurance:

Allstate
AAA
State Farm
Progressive
John Deere
Liberty Mutual

Industry:

VDO North America
Forensic Accident Investigations, Inc.
Loss Management Services, Inc.
Phoenix Group International
Science Applications International Corporation
Comcare Alliance

Health Care:

William Lehman Injury Research Center
Ryder Trauma Center
Memory Diagnostic Centers
Alzheimer's Association

Governmental & Legislative:

Florida Aging Driver Council
Florida Department of Transportation
Department of Highway Safety & Motor Vehicles
Department of Insurance
MADD

Primary Florida Contacts:

Dr. Mary Russell
Florida Atlantic University
561-297-2328
mrussell@fau.edu

Dr. Robert McElroy
Forensic Accident Investigations
561-995-6781
rmcelroy@forensicaccident.com

The Palm Beach Post

WEDNESDAY, AUGUST 25, 1999

SOUTH COUNTY FINAL

Cameras, black boxes to record crashes of young, old

FAU plans to put the devices in 1,000 cars for two years to learn about driving habits.

By Brian B. Crocetto
Palm Beach Post Staff Writer

Cameras and devices similar to "black boxes" on airplanes soon may be mounted on 1,000 vehicles to study habits of older and younger drivers, Florida Atlantic University researchers said Tuesday.

The proposed two-year study would bring FAU the largest single grant project in its history — more than \$5 million in corporate and government awards — said Mary Russell

of the university's College of Nursing.

The study — awaiting state approval — will focus on local high-risk drivers, identified as those older than 74 and younger than 25, she said.

Those two groups of drivers accounted for 18,159 crashes, resulting in 52 deaths and 8,042 injuries, according to 1998 Palm Beach County traffic engineering statistics.

Russell said she hopes the study will help establish liability in crashes, increase driver accountability, reduce insurance fraud and better identify high-risk drivers.

The Surface Transportation Recorder Study will seek 1,000 volunteers who are

willing to have tiny cameras mounted in the front of their vehicle and a transportation recorder, like an aircraft's "black box," mounted in the rear of the vehicle.

Here's how the study would work:

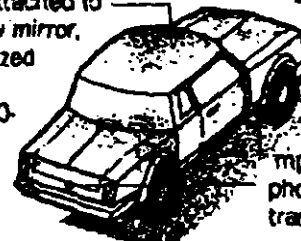
The recorder measures speed, direction of travel, and a slew of other data. When a crash occurs the device will save and transmit to the university, via a cellular phone uplink, data from 30 seconds before the crash to 15 seconds after it.

Russell said researchers hope to start selecting volunteers by Oct. 1 and have their

FAU's black box study

Here's where devices would be mounted on cars in Florida Atlantic University's proposed study:

■ **Camera:** Attached to the rear-view mirror, the pinkie-sized camera will record a 180-degree 'driver's point of view.'



■ **Black box:** Mounted on the chassis, will keep data recorded 30 seconds before to 15 seconds after any crash at speeds of 10 mph or more. A digital phone will immediately transmit crash data.

Please see **BLACK BOX, 4A**

Sources: VDO North America; Loss Management Services Inc.

STAFF GRAPHIC

ATTN: JOHN HALL
FROM: JOHN MCKEY
202-366-5930

1999/08/25

12:00

08/25/1999

Similar studies conducted in Europe

BLACK BOX

From LA

vehicles equipped and ready for the road by Jan. 1. She added that volunteers may be eligible for a discount from their insurance companies.

Tony Reynolds, product manager of VDO North America — which will provide the crash recorders for the study — said the company has been selling and installing the recorders in Europe for 10 years and has done a number of smaller trials in other countries.

"This will be the first large effort in the U.S.," he said. "You wouldn't dream of getting on a plane without a black box. Someday we will look back and wonder why it took us so long to bring this technology over to vehicles."

But it won't be the first time vehicles in the U.S. will have black boxes installed in them.

Since 1990, car manufacturers, including General Motors and Ford, have equipped millions of their cars with devices that record similar data similar to what FAU would collect. Car companies intend to use it to help build safer cars.

John Mackey, chairman of L.M.S. — a New York corporation also helping pay for the FAU program — said their system is designed specifically to give medical and safety researchers a firsthand view of what happens during a crash and use that information to reduce death and injury.

"We will finally be able to fully understand who and what is at fault in an accident," he said.

The program is supported by a half dozen corporate partners, including VDO, L.M.S. and Boca Raton-based Forensic Accident Investigations, which will provide grant money, technical advice and equipment.

Russell said the project also has the support of the National Transportation Safety Board, National

Crashes by age group

Researchers plan to study the driving habits of the old and young, whose crashes are often more severe than those of other age groups. Here are the ages of drivers involved in crashes in Palm Beach County in 1998.

Age of drivers	Crashes	Fatalities	Injuries
0-15	1,094	14	375
16-24	12,532	23	1,900
25-34	14,642	15	2,145
35-44	14,500	14	2,075
45-54	9,183	19	1,330
55-64	5,282	8	711
65-74	4,390	13	593
75 & older	4,533	25	5,767

Sources: Palm Beach County Traffic Engineering and Florida Atlantic University College of Nursing

STAFF GRAPHIC

Highway Traffic Safety Administration and the American Automobile Association.

A group of program researchers is meeting with the Florida Department of Transportation on Sept. 7 to discuss the project and the possibility of obtaining some money from the state, said Russell. She said she's confident the program will get under way.

"We still have to deal with a lot of legal and ethical issues," she said. "We still need to answer a lot of questions." Russell, who is also project coordinator for the Safe Communities Palm Beach County organization, said her interest in studying highway safety stems from the February 1996 crash that killed five teenagers on Palmetto Park Road in suburban Boca Raton.

"That is why we're doing this," Russell said.

'Black Box' Will Revolutionize Auto Litigation



But Few Lawyers Know These Data Recorders Already Exist

By Michael M. Bowden

Whenever a commercial airplane falls from the sky, news reports breathlessly follow efforts to salvage the all-important "black box" — the computerized flight-data recorder used by investigators to determine exactly how and why the accident happened.

Believe it or not, millions of cars on the road today are equipped with similar devices, carrying information that could eliminate much of the guesswork in accident reconstruction and forever change the way accidents are litigated.

But hardly anyone — including the lawyers who routinely

try automobile cases — even knows these "black boxes" exist.

Black boxes can record speed, throttle position, whether seat belts were fastened as well as the use of brakes, the steering wheel and signaling devices during the five seconds before the crash. If the vehicle is involved in a collision, the data is "frozen" for future analysis, right down to the essential "Delta V" (loss of velocity) numbers — a vital measure of an impact's severity.

Although the power of this information is undeniable, it remains one of the auto industry's best kept secrets. Last month

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'Black Box' Will Revolutionize Auto Litigation

(continued from page B1)

At the ATLA annual meeting in San Francisco, litigator Lawrence Friedman of Boca Raton, Fla., asked a roomful of experienced trial attorneys whether any of them were familiar with the technology. Not a single person raised their hand.

William Rosenbluth, an expert in retrieving and interpreting black-box data, had a similar experience in April while addressing a group of plaintiff lawyers who handle product defect cases.

When Rosenbluth described all the information these black boxes contain, the lawyers were astonished.

"You really have to understand the value of it," says Rosenbluth, who heads Automotive Systems Analysis, Inc., in Reston, Va.

"Very few of them understood the extent, quantity, quality, and parameters of the data saved after a crash," he says. "It's like suddenly having a word processor if you always used a typewriter. It's just so much more valuable."

As the word about black-box data spreads through the profession, more and more lawyers are likely to try using it in court, augmenting — and in some cases replacing — traditional expert and lay testimony.

"Ultimately, this will change the way cases are litigated," says John Rupp, a Chicago defense lawyer and co-chair of the DRI's Auto Products Specialty Litigation Group.

"It will be a valuable tool on both sides to determine who is at fault," agrees Friedman, who chairs ATLA's Motor Vehicle, Highway & Premises Liability Section. "In effect, the black box will become the eyewitness to the accident," he says.

What Can a 'Black Box' Do?

Because the technology is so new, here don't appear to be any cases in which data from black boxes has been a deciding factor at trial. However, its ultimate impact on accident investigation and litigation promises to be profound.

For instance, the *New York Times* recently cited the case of Miami police detective Robert Vargas, who was driving his unmarked car through rush hour traffic when he received a robbery call.

While he was passing through an intersection toward the brick scene, two cars hit his Chevy Lumina and killed him instantly. One car struck Vargas' right passenger door, pushing him into a lane of oncoming traffic, where he was hit head-on by the second car. Investigators on the scene, however, said the collision should not have killed Vargas.

Their data, which was gathered by traditional methods, suggested that none of the cars involved had been moving very fast in the heavy traffic, so

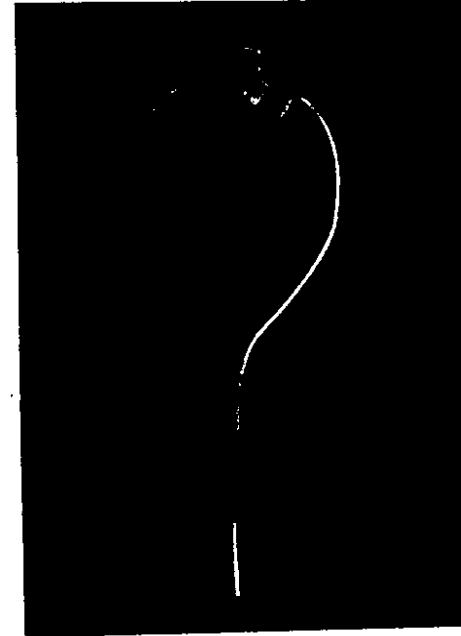
the impact need not have been deadly. Further, Vargas' airbag had fully deployed, so he should have been protected in the head-on.

The mystery was finally cleared up when someone suggested downloading the black-box data: That showed that the initial, right-side impact had been heavier than investigators calculated, causing the airbag to deploy upon the initial hit. By the time Vargas' vehicle came to rest in the oncoming lane, the airbag had already deflated — leaving him unprotected in the second impact.

This example offers only a glimpse into the potential of black-box technology.

Some lawyers speculate that black-box data will eventually obviate the need for expert testimony in crash cases. At the very least, they can serve as compelling debaters.

"When reconstruction experts for each side have estimated a speed to plus or minus 20 percent, and there's some dispute, you can derive a speed out of a computer record that goes a long way toward verifying one or the other, whichever way it may go," Rupp notes.



First, however, you've got to access the box — and, for now at least, that can be tricky.

"There's data in several different computers," Rosenbluth says. "Some are for braking, some are for traction control, some are for airbags. So there isn't just one 'black box' — and, by the way, they're usually not black, they're silver."

The most sophisticated device on the market — installed on certain high-end 1999 cars by General Motors (see accompanying article) — is about the size of a videocassette and sits under the driver's seat. In other cars, the device might take the form of a microchip inside the car's steering column, or hidden deep in its wiring system.

Whatever form the box may take, the next step is to retrieve the information it contains.

"The data doesn't come out in a manner that's English-readable," Rosenbluth explains. "It's a mathematically coded data stream," which, once decoded, contains "a lot of information that's considered valuable by certain attorney-folk."

Downloading this information cur-

rently requires special equipment and software, which is not yet commercially available. But already, problems of access appear to be fading away.

By the end of this month, Vetronix of Santa Barbara, Calif., plans to release QM-compatible software, which will enable anyone with a laptop computer to find out just what their black box has to say.

Lots to Litigate

So we now have a device that provides mathematically precise answers to all of the questions attorneys usually fight about at trial: Does this mean we've reached the end of auto crash litigation?

No way.

"Any kind of data can be challenged," Rosenbluth notes. "That's the cornerstone of the adversary legal process."

In fact, he says, plaintiffs' lawyers have already asked him to pit his interpretations of black-box data against those of the manufacturer's experts.

In Massachusetts, the state police are currently trying to establish a pilot program that would address this issue. If approved, the program would analyze black-box data from cars involved in fatal crashes and then compare the results with those reached by traditional reconstruction methods.

Within five years, Rupp predicts that black-box challenges will be a centerpiece of almost all automobile litigation.

"As a trial lawyer, I'd love to exploit it," he says.

Friedman agrees.

"I think it's already become an issue now that lawyers have been made aware of the existence of the black box," he says. "Now the fun's going to begin."

Some of the questions to expect:

• Who owns the black-box data? Who can access it?

Before you can decode the data in a black box, you've first got to get your hands on the device.

Who might need some judicial determinations as to whether it's available, and how to obtain it," Friedman notes.

Phil Haseltine, a spokesman for the Virginia-based American Coalition for Traffic Safety, believes that the owner of the vehicle logically owns the data contained within it. "So it can only be accessed with the owner's permission or by court order," he says.

In that case, black-box data would be just one more item to ask for during discovery.

But David Noonan, the trooper in charge of the Massachusetts State Police pilot program, says the issue is more complicated than that.

"Everybody has a different opinion on this," he says. "Some people say the

Why Auto Makers Are Building Black Boxes

New Technology Thrusts Data Recorders Into the Spotlight

By Michael M. Bowden

The idea of installing black-box recorders in cars is nothing new. Chevrolet started the trend back in 1973, as part of an early airbag system, and almost all other auto manufacturers have since followed suit. Black boxes provide a constant flow of data that "tell" airbags when and where to inflate.

So, any car with an airbag, also has a black box. But this feature never garnered much attention except among engineers—never, that is, until this past May, when General Motors issued a seemingly innocuous press release announcing that a new generation of black boxes would be installed in some of its higher-end 1999 cars.

The Associated Press happened to pick up the story, the New York Times and a couple of other big newspapers followed with analysts pieces—and soon the concept of automotive data recorders began to seep into the public consciousness.

The improved GM device records not only Delta V and airbag performance, but also stores other data for each of the last five seconds before impact—for instance, time of braking, vehicle speed, engine speed, gas pedal position and seat-belt status.

It's installed in all 1999 Buick Century Park Avenue and Regal models; the Cadillac Eldorado, DeVille and Seville models; the Chevrolet Camaro and Corvette; and the Pontiac Firebird. Within five years, the box (or an even more advanced version of it) will be installed in every GM car.

Ford has already equipped hundreds of thousands of its cars with a similar device, and other manufacturers will probably do the same—if they have already. The problem is, no one has been formally designated to keep track of which cars have these devices. Nor is there any industry standard for what information must be compiled by black boxes.

"I'm just getting up to speed on this issue myself," says Phil Haseltine, a spokesman for the Virginia-based American Coalition for Traffic Safety. "Until a few weeks ago, no one had given it much thought, quite frankly."

Bill Rosenbluth, an expert in retrieving and interpreting black-box data, hopes to fill that information gap. Rosenbluth, who heads Automotive Systems



The black box can be read by plugging it into an ordinary computer, but it takes an expert to read the results.

Analysts, Inc., in Reston, Va., is currently at work on a book that will "pull together" lots of information about the kinds of data recorders installed in different car makes and models, and how to access and interpret the data. Other companies are also working on similar projects.

Some manufacturers will only give out data if they are going to see more manufacturers' data. Others are putting data into the field two or three years before it is needed.

This is due mainly to the increasing sophistication of automobile safety features.

"We have some very advanced airbag systems coming into the marketplace," Haseltine explains. "These systems deploy airbags at different levels, depending on the speed of the collision and the size of the occupant."

And the more complex the system, the more complex the data that must be collected. For now, GM and Ford appear to be the leaders in black-box sophistication; among European automakers, Volvo has done the most work with black boxes.

"Other manufacturers may be doing the same—but they're not talking about it," Haseltine notes. In the wake of the recent media blitz, it appears that GM executives wish they had kept quiet as well.

"We're shying away from the [publicity] a little bit now," says Terry Rhadigan, a GM spokesman in Detroit. "Because just about every article that comes out positions GM as being out-front and exclusive on this, and that's just not the case. We're a little perplexed and frustrated by the way this has been characterized as a GM issue, when in reality it's an industry issue."

Experts say that's because GM is clearly leading the pack.

"I think it's fair to say that GM is farther out front than any of the other manufacturers," says John Rupp, a Chicago defense lawyer. "Certainly, GM is collecting more different kinds of data than anybody else."

Rupp, who is also co-chair of the DRI's Auto Products Specialty Litigation Group, feels that GM may fear that their life-saving instruments will become new weapons of litigation.

"This is primarily a safety development, designed by GM to help them understand their product better than it's ever been understood before," he explains. "They don't want to have that ability be compromised in the courtroom."

Some observers speculate that GM may fear that publishing its black box will create a "Big Brother" effect, eroding its profitability. But Lawrence J. Friedman, a lawyer in Boca Raton, Fla., and chair of the U.S. Motor Vehicle, Highway & Premises Liability section, says such apprehensions are misplaced.

He is putting a negative spin on it, when they should be putting a positive spin on it," Friedman says. "This technology will promote better safety, and more certainty in auto accident cases, because the parties can discover what actually took place. This will lead them to even better safety devices to protect the drivers from the hazards on the road."

information is proprietary to the motor vehicle manufacturer. Some will tell you that the owner of the vehicle owns the information. Some insurance companies say their contracts give them access to any and all components of the vehicle necessary for an adequate investigation of the crash, and that would include the box.

Accident reconstruction experts also want in on the action, Noonan says.

"They feel they should be given the opportunity to do a valid inspection of the vehicle, and that this would include electrical components," he explains. "If they have a situation where they suspect brake failure, in many cases, they'll take the brake apart and analyze that. They don't think this is any different."

Noonan doubts whether all these differing opinions can be peaceably resolved.

"I'm sure there'll be a war," he says.

• **What about privacy?**
Some lawyers say privacy issues might also arise.

There are a lot of questions right now. How can the data be

processed remotely? That would concern me as a vehicle owner.

"For instance, do we want police officers to be able to punch a button and conclusively determine how fast a car is going? There are enough tickets as it is. We need some guidelines in that regard," he says.

Most black-boxes today are believed to store only a few seconds of data at a time. But Rupp notes that it wouldn't be much of a technological leap to design a box that could preserve hours, days, or even months of data at a time—essentially creating a complete record of your private driving habits.

Such possibilities cause some lawyers to question of how much of the data in your car's black box should be accessible. For instance, what if black-box data reveals that you're a habitual speeder or tailgater (i.e., by collating accelerator and brake usage, or using data from bumper sensors). Could the police make you answer for earlier offenses?

Or what if the box contains exculpatory information that would help

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'Black Box' Will Revolutionize Auto Litigation

Continued from page 3

driver in accident litigation, but would also reveal (using tracking sensors in conjunction with the Global Positioning System) that he was frequenting a lover while his wife and kids thought he was working late? Can data irrelevant to a particular incident be

"censored" or withheld?

Loads of similar questions could conceivably arise, but Friedman says privacy issues don't particularly worry him.

"They don't really trouble me," he says. "Because this is no different from any other information we want to obtain concerning seatbelts and airbags,

and other sensor devices currently in motor vehicles. I think the benefits outweigh the negative aspects of this."

• *How reliable is the information?*

Even after you've gained possession of the data and decoded it, the battle is far from over.

"That's when you're going to get into the issues of how reliable the data is, whether it's tamper-proof, and all of that," says Friedman. "The technology is obviously going to be put under the scrutiny of physicists and biomechanical engineers, accident reconstruction experts—they're going to have to be satisfied that the information obtained is reliable."

Rupp agrees.

"There's always the question of imperfect technology," he says. "I think there'll always be people—at least in the near term—questioning how precise the technology is."

Friedman compares the coming battles to those fought over another technical icon of the modern world: The police radar gun.

"When the radar gun first came out, there were problems: sometimes it would measure the wrong car, sometimes it wasn't calibrated properly, sometimes it wasn't being effectively used," he says. "But these days, you'd be hard pressed to convince a judge not to accept that data."

• *Is the data collection inherently biased?*

Even if the data itself is sound, plaintiffs in product liability cases may question the kinds of data chosen for storage, and the kinds excluded.

Rupp predicts that whenever black-box information favors the car manufacturer, plaintiffs' attorneys will argue that this is because the company specially designed the box to record only the data likely to favor them, and not the data likely to help the plaintiff.

"As a litigator, I'm concerned a plaintiff would say, for instance, that GM has selected certain criteria to make their cars look better in accidents, even though I know for a fact that this isn't true," Rupp says.

"They might say the data is unreliable because it only measures certain things: For instance, 'Why did GM select to record factor A, but not factor B? Unrecorded factor B would have shown that recorded factor A isn't as significant as is being made out.'"

"Ok, The universe of what needs to be measured in this accident, my expert will tell you, requires knowing 15 different things—and this data only gives you eight." That type of thing.

But those arguments wouldn't end the inquiry, Rupp notes.

"I'd simply argue back, 'Well, it's better to know those eight factors with certainty. It's minimizing the risk on the rest of it,'" he says.

Guidelines Needed

Ultimately, experts say, the black-box data collected should be standardized throughout the industry, and regulated by federal guidelines.

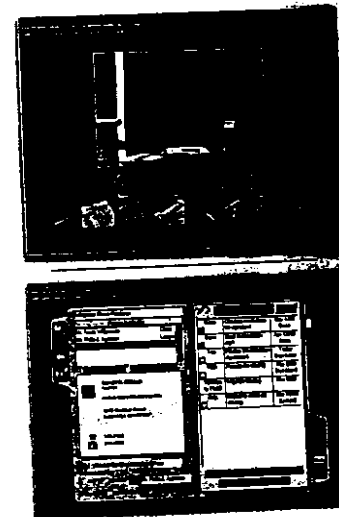
"I think we'll need that," Friedman says. "As the public becomes more aware of the automobile black box, and how both consumers and litigants can benefit by it, I think there will be a move for some sort of federal legislation covering all motor vehicle manufacturers."

These guidelines would address such topics as minimum standards, the type of information that should be collected, and who's entitled to view the data under various circumstances.

"As the technology becomes more standardized among auto makers we'll begin to see some parameter developing," Rupp says. "And we'll be getting information that more accurately establishes speed, time of airbag deployment, Delta V, and those types of things."

In time, experts may be able to create reliable guidelines, such as, "If the black box data reveals that a driver did A and within a given time frame, then he/she is using the vehicle properly, and the fault may have been mechanical."

That kind of information will eventually help us to eliminate certain issues about the accident and focus on the others," Rupp says. "From a lawyer's standpoint, this keeps the wheel turning—of course, from a consumer standpoint they're getting a safer car."



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NHTSA should develop a child test dummy representative of a 10-year-old child;

NHTSA should require that child restraints be dynamically tested.

ISSUE: ON-BOARD CRASH RECORDERS

Electronic monitoring of vehicle operating systems is a burgeoning area of research and application to the entire range of motor vehicles, both large and small. An important area of safety technology which could save many lives and reduce the serious consequences of injuries to survivors in motor vehicle crashes is on-board crash recorders. These systems not only have promise in helping to reconstruct the actual circumstances of crashes, but also can be used to transmit information to emergency medical services personnel and police so that responses to severe crashes, especially in less populated parts of the country, can be accelerated.

Some manufacturers are already equipping certain models of passenger vehicles with different types of on-board recorders. The information recorded varies but should include the date and time, the vehicle speed at the time of impact and the change in velocity of the vehicle, the type of crash type (i.e., side or frontal impact), whether safety belts were buckled and other pertinent data. Information relayed to medical facilities on impact severity can be transmitted directly to emergency response units and used for triage in order to assure the appropriate medical response is dispatched as quickly as possible. Rapid response to crash injuries frequently not only results in saving lives that otherwise would be lost from delay, but also has substantial effects on the severity level of injuries which are not life threatening. The Haddon Matrix emphasizes the need to continue protection after the crash event itself so that appropriate care of the injured occupants or pedestrians occurs as quickly as possible.

On-board crash recorders are part of the development in technologies that can provide monitoring of commercial vehicle operating systems as well as human performance behind the wheel. Reliable technologies are now available which can accurately verify important safety aspects of commercial vehicle driver performance, especially adherence to regulated maximum limits for driving time. Technologies such as on-board recorders and Global Positioning Satellite (GPS) systems can provide both real-time and stored data on commercial vehicle operator continuous driving time and vehicle location on the road. On-board recorders, in combination with vehicle GPS, can deter falsification of commercial driver paper logbooks and reduce the dependence of enforcement personnel on paper documentation for vehicle routing and driver duty status. These means of overseeing commercial driver hours of service compliance could substantially reduce the dangers of large trucks and buses being operated by fatigued drivers whose alertness and safety performance has been reduced by sleep deprivation.

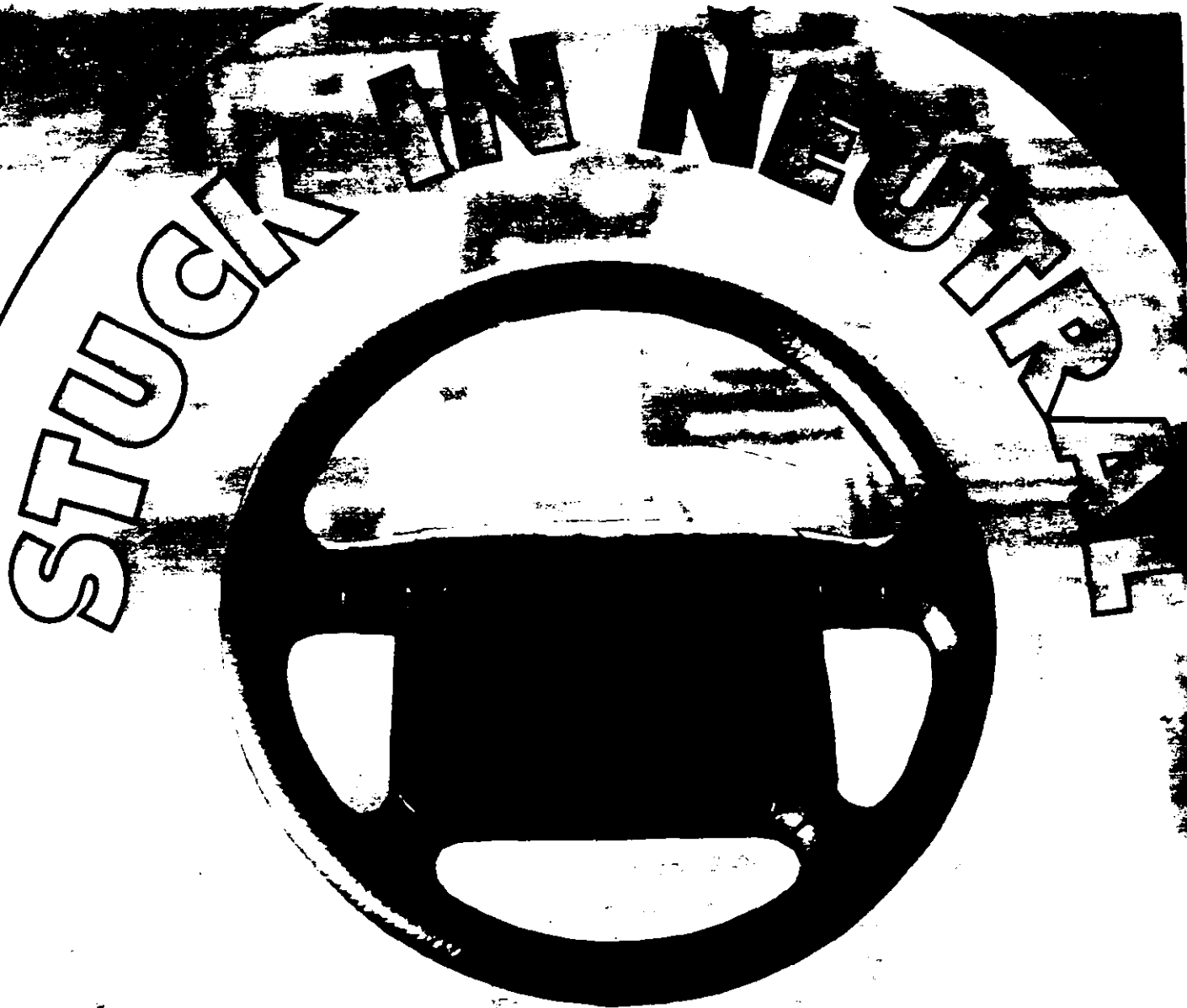
RECOMMENDATIONS:

NHTSA should require on-board crash recorders in all passenger vehicles and establish minimum requirements for data collection;

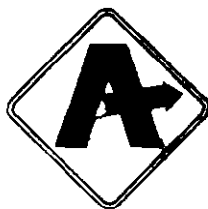
NHTSA should require appropriate data on crash mode and severity be linked to automatic crash notification systems.

FHWA should require on-board commercial vehicle technologies which help to accurately verify commercial driver hours of service compliance.

ISSUE: EMERGENCY RESPONSE AND AUTOMATIC CRASH NOTIFICATION



**RECOMMENDATIONS FOR SHIFTING
THE HIGHWAY AND AUTO SAFETY AGENDA
INTO HIGH GEAR**



**ADVOCATES
FOR HIGHWAY
AND AUTO SAFETY**

SEPTEMBER 16, 1999

Driver's black box

The lure of saving up to one-fourth off their premiums has some drivers subjecting their behind-the-wheel habits to the scrutiny of their auto insurer via a "black box" installed in their car. Progressive Insurance Co., the nation's fifth-largest auto insurer, has placed hundreds of monitoring devices in customers' vehicles to measure how much they drive, when and where. The customers, all in Texas, volunteered for the 14-month-old test program, which the company calls Autograph and charges extra for. The incentive is that customers can save up to 25% on insurance rates tailored to their individual driving habits rather than broad estimates. The company expects to benefit by getting new business from consumers who like the idea of having some control over their insurance rates and saving money.

But privacy advocates said they were concerned that use of the black boxes could be expanded. The device's patent describes a system of onboard sensors that could track whether a driver signals before turning, tailgates or stops so sharply that anti-lock brakes engage. Once a month, the company's computer calls the device in the car and uploads the information it has collected. "There could be a high degree of interest from the government in getting access to this type of data. It could be used for litigation between private parties or by law enforcement. You can't create a swimming pool of data without putting a fence around it," said Deirdre Mulligan, spokeswoman for the Center for Democracy and Technology, a free speech and privacy group. Progressive does not plan to release any of its driving records to marketers unless they are "consumer friendly and the customer agrees," McMillan said. The company won't say if it is going to expand the test beyond Texas, but McMillan said there are no immediate plans to change the scope of what is monitored.

New air bags

Safety regulators say the air bags in most new vehicles are much less powerful than the old kind; and they're saving lives. The National Highway Traffic Safety Administration says the redesigned air bags, which were tested by the agency, pose less risk of death or serious injury.

Homeless advocates stunned by 'work for shelter' policy

Homeless advocates say they're stunned by New York Mayor Rudolph Giuliani's new policy of forcing homeless people to work for shelter. A policy adviser for New York City's Coalition for the Homeless says the plan could throw hundreds, if not thousands of people, into the streets. Homeless parents say they can't afford day care for their kids while they work. Under the policy, children could be put in foster care if their parents refuse to work. New York is believed to be the only major US city to impose a work-for-shelter requirement.

Jesse Ventura for president?

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Monday September 27, 3:32 pm Eastern Time

Company Press Release

SOURCE: Advocates for Highway and Auto Safety

Harris Poll Finds Overwhelming Public Support for Revamping Federal Motor Vehicle Safety Standards, Improving Intersection Safety, and More Frequently Testing Nation's Youngest and Oldest Drivers

Advocates for Highway and Auto Safety Marks 10-Year Anniversary By Issuing Recommendations to Shift Road and Vehicle Safety Into High Gear in the 21st Century

WASHINGTON, Sept. 27 /PRNewswire/ -- The American public overwhelmingly favors an overhaul of federal motor vehicle safety standards, stepped up attention to intersection safety, and more frequent license testing for the nation's youngest and oldest drivers, according to a new Louis Harris poll released today.

Advocates for Highway and Auto Safety (Advocates), an alliance of consumer, safety and insurance organizations founded in 1989, commissioned Harris to conduct the independent survey. In conjunction with the release of the Harris survey, Advocates issued a report called "Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear" that provides more than 90 remedies to dramatically reduce death and injury on the nation's highways in the 21st century.

Among the key findings of the Harris poll were:

- * Nearly a 3 to 1 (69% - 25%) majority believes it is time to revamp outdated motor vehicle safety standards to modernize and improve the safety performance of cars and trucks.
- * More than 9 of 10 people (93%) believe it is important that the federal government take the lead in setting strong consumer safety standards, such as motor vehicle safety. Harris found that support in this area has continued to grow since he posed the same question in 1996 (87%) and 1998 (89%).
- * A vast majority of Americans (85%) say their communities should pay

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greater attention to improving intersection safety to better protect motorists and pedestrians alike. A 3 to 1 (74% - 23%) majority favors state and local authorities using intersection cameras to catch red light runners. Approval for red light running cameras grew from 65% in Harris' 1998 poll. Engineering measures such as changing traffic signal timing, adding left lane turns, and making signs less confusing all met with substantial approval.

By large majorities, the American public supports more frequent license testing of older drivers (83%) and younger drivers (72%); U.S. Census projections show that the population of teens and persons 65 years and older will substantially increase over the next decade.

In response to fears about truck safety and the dangers posed by fatigued truck drivers, a large majority of Americans (81%) favor installation of driver warning systems and black boxes to improve enforcement of truck safety laws.

"It appears that the American people are way out in front of most politicians when it comes to highway and auto safety," said Judith Lee Stone, President of Advocates. "It is time for our political leadership to catch up with our nation's consumers on this issue."

"The American people's appetite for strong rule-setting in consumer matters is high," said pollster Harris. "People reject turning over this function to the state and localities in its entirety."

Highway crashes are the number one cause of death of Americans under age 30. Since 1982, while alcohol-related traffic deaths have dropped by 37% (from 25,100 in 1982 to 15,900 in 1998), NON-alcohol-related highway fatalities have increased by 36% (from nearly 18,800 in 1982 to 25,500 in 1998).

In 1990, nearly 44,500 people were killed in highway crashes. By 1998, the highway death toll dropped to nearly 41,000. "Some might say this is great progress, but can we, as a civilized society, say that our nation has done all it can when 41,000 Americans are likely to lose their lives this year?" Stone said. "Our nation is stuck in neutral when it comes to the waging a real fight against our highway death toll," added Stone. "We want this turn of the century to be the beginning of a renaissance period for highway and auto safety."

To help jump-start that process, Advocates today released a report outlining more than 90 recommendations to dramatically reduce death and injury on our highways. The report -- called "Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear" -- covers a wide array of safety concerns about the vehicle, the driver and the road itself. The report calls for federal action to revamp car and truck safety standards. It also outlines legislative action to improve safety belt and child restraint protection, to stop drunk driving, to combat red light running, and to address growing concerns about older and younger drivers.

Among its recommendations for overhauling federal auto safety standards, Advocates urged the U.S. Department of Transportation to:

- improve "roof crush" protection
- upgrade rollover protection by making vehicles, especially sport utility vehicles (SUVs), more stable, and to better pad interiors and upgrade door latch/ hinge performance.
- issue a final rule on advanced air bag systems that includes performance requirements to protect children in low speed crashes, unbelted occupants in high speed crashes, and all occupants against neck, head and chest injuries;
- address passenger vehicle compatibility by improving front end and

- side impact protection in smaller vehicles, and by modulating the size of large vans, pickups and SUVs.
- upgrade side impact protection performance requirements in car, vans and light trucks,
- increase protection for pedestrians struck by vehicles, including less rigid parts on vehicle front ends,
- expand the scope of child restraint system standard to children who weigh 80 pounds.

"The Harris poll showed that consumers are willing to pay more to protect themselves and their families," said Joan Claybrook, President of Public Citizen and a member of the Advocates national board. "Consumers demand and expect that the latest technologies, the best products based on the latest knowledge, will be incorporated into the new vehicles they buy."

Safety concerns were also expressed today in response to U.S. Census Bureau predictions of large increases in teen and older (65 years +) drivers in many states over the next decade. From 1988 to 1998, there was a 12 percent drop in total traffic fatalities in our country. But for persons 70 years or older, the number of fatalities increased by 17 percent. As the Baby Boom generation begins to reach retirement age, the population of drivers over 65 is expected to grow by 60 percent by year 2020. Most people have a driving test only when they get a driver's license for the first time.

Advocates called on the states to more frequently test older drivers and to consider "graduated licensing" for older drivers. Much like traditional graduated driver licensing that is used to allow new drivers to adjust to increasingly more difficult driving situations, graduated systems for older drivers work in the reverse by reducing driving privileges according to the drivers' ability to handle the demands of different types of driving situations.

This form of graduated licensing allows trained licensing authorities to assist by making evaluations of driving skills. Under such systems, a driver's license can be custom tailored to the driver's specific abilities and may increase such limitations as day driving only, use of special equipment like wide-angle mirrors or requiring a companion in the car.

Another approach to address the older driver issue is a law recently enacted in Missouri giving doctors and family members permission to report an older driver whose driving is questionable, and to permit the Motor Vehicle Administration to test the older driver. Both approaches were praised for reevaluating the older driver's performance based on driving skill rather than on age alone.

Advocates also urged each state to enact graduated licensing laws for new drivers. Last year, 14 percent of all the drivers involved in fatal crashes were between 15 and 20 years of age, in spite of the fact that teen drivers account for only 7 percent of all licensed drivers.

On July 14, 1998, a newly-licensed 16 year-old driver caused a multiple fatal crash near a high school in Bethesda, Maryland, that resulted in three deaths, including that of teen passenger Matthew Waymon of Takoma Park, Maryland. Matthew Waymon's father, Todd Waymon, spoke at today's news conference, and urged all states to enact graduated licensing laws and to require more frequent testing of younger drivers. "We need to make sure that every state enacts a Graduated Licensing Law that phases in the full driving privilege of new drivers," Waymon said. "Also requiring our youngest drivers to be tested more frequently would surely save lives."

Waymon also backed Advocates' call on each state to enact laws allowing standard enforcement of seat belt laws. "If our nation is serious about highway safety, there is nothing more important the states can do to protect our families than to pass comprehensive seat belt laws that require everyone, of all ages and in all seating positions to buckle up."

Another issue that attracted broad public support in the Harris poll was intersection safety. According to the Federal Highway Administration, from 1992 to 1998, the number of fatal crashes at

intersections has increased by 16 percent, while all other types of fatal crashes have increased by only 5 percent. Drivers who ran red lights were involved in 89,000 crashes, causing more than 1,000 violent deaths and 80,000 injuries last year. "Red light running is a growing problem, and it's not confined to a specific demographic profile," said Jacqueline Gillan, the Vice President for Advocates. "Red light running is one of the most dangerous things any driver can do. I found this out the hard way." Last year, Gillan was injured in a crash caused by a red light runner at a Maryland intersection.

The Harris poll found growing strong support for intersection cameras to catch red light runners. Safety advocates are also urging states to consider engineering design solutions to dangerous intersections. With rising pedestrian traffic on many urban and suburban streets, pollster Harris said "it is not a surprise to find a solid 70 percent majority of Americans believe that more attention should be paid to this new danger zone."

Alan Maness, Federal Affairs Director and Counsel for State Farm Insurance, pointed out that red light running cameras at intersections are part of a new wave of effective technology that is showing great promise in its early stages. The public is right on target when it comes to intersection safety, and we urge every state and community to adopt stop this lifesaving technology."

The Advocates' report also recommended that Congress withhold federal highway funds from states that fail to enact laws to require standard enforcement of state seat belt laws, to set the legal limit for drunk driving at 0.08% BAC, and to require motorcyclists of all ages to wear safety helmets.

A national cross-section of 1,005 randomly chosen adults 18 years of age and over was surveyed by Peter Harris Research Group, under contract to Louis Harris. The interviewing took place from August 17 - August 26, 1999.

The findings of the Lou Harris poll and the Advocates' report on "Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear" can be found on the Advocates Web site: www.saferoads.org.

For More Information, Contact: Carolyn Davison, 301-770-5277 or Bill Bronrott, 301-652-6016.

SOURCE: Advocates for Highway and Auto Safety

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SEPT. 24, 1999

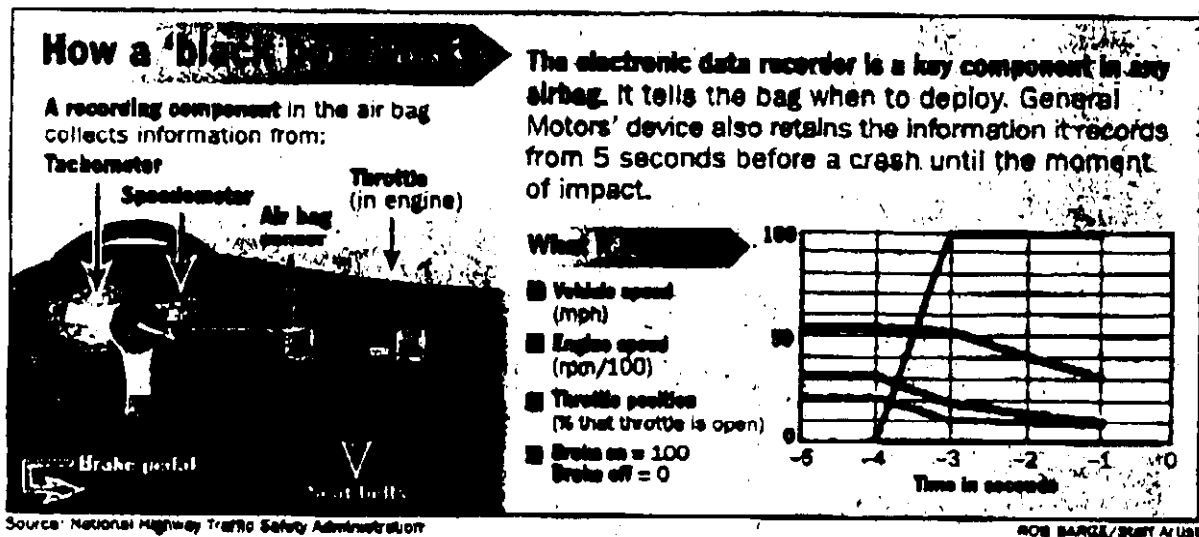
SUNDAY, SEPTEMBER 12, 1999

TO: JOHN HINCH

FROM: JOHN HACKETT LMS, INC. The Palm Beach Post

LOCAL NEWS

Big Brother may be lurking inside your car



Black boxes: first used to see whether air bags deployed, can record driver's misdeeds.

By Brian D. Crockett
Palm Beach Post Staff Writer

The next time you speed or have to slam on the brakes because you're following another car too closely, think about this: Your car could be one of millions loaded with advanced recording equipment that keeps track of a driver's every misdeed.

Black boxes have long been used in planes, ships and even automobiles, but federal officials are still struggling to answer

critical questions about the information gathered in those recorders: How and when can the data be used and who owns it?

The questions pit the search for truth against the need for privacy. Depending on how they're answered, Big Brother could be riding shotgun in millions of vehicles by the beginning of the millennium.

"Would you like a police officer to walk up to your car, plug into a black box and determine how fast you were going?" asked Bob Cameron, a spokesman for Volkswagen of America. "The legality and the ownership of the data, that's the stumbling block."

Cameron and a slew of other

car manufacturers, universities and researchers have been meeting with the National Highway Traffic Safety Administration since 1998 in a work group formed by the government to look at the legal, ethical and technical questions surrounding the use of event data recorders, commonly known as black boxes, that have evolved with the advent of air bags.

Florida Atlantic University researchers also are concerned about the issues of privacy rights and who owns the recorded data in a research project they plan to begin in January. The FAU re-

Please see **BLACK BOX, 7B**

Privacy issue a big question

BLACK BOX

From 1B

searchers plan to study the habits of what they call high-risk drivers — the young and elderly — by placing black boxes in the cars of 1,000 volunteers.

Event data recorders are not new. In 1973, the NHTSA installed the first basic data recorders in 1,000 volunteer test vehicles. The following year, General Motors installed its first data recorder, connected to air bags in vehicles.

"One of the early uses of black boxes was to see if air bags deployed correctly," said John Hinch, who heads up the work group for NHTSA. "That evolved into a crash recorder with uses beyond watching air bags. Now, almost every car with air bags has some type of crash recorder."

But there is no federal regulation of these devices or requirement that the information they collect be available to public agencies. Nor will the work group necessarily make any recommendations concerning those things.

The group's mission is to study the state of the technology, determine where car companies stand on the question of ownership of information, develop a uniform approach to recording such data, and discuss how researchers might acquire and use such information.

The data obtained from the recorders in cars could be used to catch vehicle defects earlier, fix dangerous roadways and make drivers safer, Hinch said.

"I think it has potential to be as huge as black boxes on airplanes," he said. "Right now, we go to (vehicle) crash sites and use rulers and measurements to make guesses about what happened. This will show us what happened."

NHTSA officials and most car manufacturers generally agree the information culled from black boxes is the property of the car owner. All names and identifiers are erased from any information NHTSA collects, Hinch said.

"This is similar to the government's policy with black boxes in planes. Airlines allow the FAA access to the information purely for research purposes and the information cannot be used to file charges or bring investigation against an airline, according to NHTSA records.

"At NHTSA, what we are interested in is if the air bags, seat belts and crumple zones work, not who is at fault. That's not our job," Hinch said.

While some vehicle manufacturers say their interest also is research — to make vehicles safer — they acknowledge that they would use the data to defend themselves in a lawsuit.

That concerns Ed Ricci, a West Palm Beach attorney who recently took General Motors to court in Michigan. Ricci sued the car manufacturer on behalf of the family of Jerome Brown, All-Pro tackle for the Philadelphia Eagles.

In June, a jury found that Brown's own negligence resulted in a one-car crash that killed him in 1992 in his hometown of Brooksville, Fla. Police reports said Brown's Corvette was on the wrong side of the road and traveling 51 mph in a 30-mph zone before sliding, hitting a tree and power pole and flipping over — killing Brown and a 12-year-old nephew.

Ricci said that, during the trial, General Motors used data it had collected from air-bag sensors in Brown's car.

"(Black boxes) are the equivalent of a home builder putting hidden microphones and cameras in your house," he said. "Consumers don't know these computers are there, and the companies consider the programs proprietary information."

But Kyle Johnson, a spokesman for General Motors, said the information is the property of the car owner and can be gathered only with the permission of the owner or through a subpoena.

"Right now, in any lawsuit of this type, they use estimates," Johnson said. "All this does is provide you with a more precise, quicker and less expensive way to get that information. It just takes a lot of the guess work out of it."

GM is the leader in data recorders when it comes to how much information they record and their willingness to share that data with the government and the public, Hinch said. GM built a system that allows investigators to retrieve information and, by this Christmas, the public will be able to buy a similar device that works with a laptop computer on GM cars, he said.

GM started installing its most advanced crash recorders in some vehicles in 1998. By the year 2001, about 3 million GM vehicles will have the device installed and, by 2002, all new GM vehicles will have "black boxes"

in them, Hinch said.

GM's computer-like device continuously records information about speed, engine speed, brake use and how wide the throttle is open from sensors in key places in the cars. The computer updates the information once a second and even keeps it for 5 seconds before having to dump the information so it can reuse the storage space. The air bag needs the information updated that often to allow it to deploy in less than one-twentieth of a second of impact.

In the case of a crash or even a near-crash — such as when brakes lock and a car comes to a skidding halt — the GM device will freeze the past 5 seconds' data so that it cannot be altered or erased.

GM's Johnson said: "Our basic philosophy on data recorders is that it has proven valuable in other industries like the airline industry. It may lead to better roadway design, may lead to better vehicle design, may lead to better test procedures."

That's what happened in July 1990, when data from crash recorder-equipped air bags led to the voluntary recall of nearly 1 million GM vehicles equipped with air bags that deployed too easily, Johnson said.

"It made things happen quicker," he said.

The committee formed by the government to study the ethical and legal issues plans to present its findings to NHTSA by the end of next year.

"We don't think the technology is there yet to actually mandate these devices (that retain information)," Hinch said. "It's not clear they will prevent accidents. Black boxes on airplanes don't prevent accidents. They help you understand them so you can prevent the next one."

"Maybe this is something we would mandate in five or 10 years, when the technology is better."

But several car manufacturers say a federal requirement would make putting the devices in vehicles simpler.

"There is a potential backlash if manufacturers install these on their own," Hinch said. "As people learn that these devices exist they may say, 'I don't want it.' And in GM vehicles, for instance, there is no way to turn that off. So you have no choice; your only choice is to buy something else."

Meanwhile, NHTSA and other government agencies are relying on data collected from government-sponsored programs and ones run by universities like the proposed study by Florida Atlantic University's, slated to start in January.

In one such program, NHTSA is testing an "automated collision notification system" that dials 911 after a crash occurs.

Another program, run by the Texas Transportation Institute, will collect data on 50 drivers' speeding behavior and log information on any crashes that occur.

But Hinch said FAU's is the only study he knows of that looks only at crash data.

Event data recorders to be used in the Florida Atlantic University study would measure speed, direction of travel, and can be programmed to detect up to 10 other items, such as whether a seat belt was in use, whether headlights or blinkers were in use or whether a cell phone was on. The study also would include mounting a pinkie-sized camera above the rear-view mirror to give researchers a driver's-eye view of any crashes that occur.

When a crash occurs, the device will save and transmit to the university, via a cellular phone uplink, data from 30 seconds before the crash to 15 seconds after it.

"I'm very interested in any of these programs," said Hinch, who plans to attend a presentation by FAU's team of researchers in Tallahassee in early September. "The problem with these systems is that people don't get in crashes very often."

NHTSA figures show a two-way crash for about every 384,615 miles driven by Americans.

Tony Reynolds, product manager of VDO North America, which will provide the crash recorders for the FAU study, said VDO has performed similar studies in Germany and sells black boxes to the public for after-market installation.

"There was a time when the airline industry went through these same discussions," Reynolds said. "Yet today you wouldn't get on a aircraft that didn't have a black box on it."

Staff writer Clay Lambert contributed to this story.

History of black boxes in cars

- **1973:** The National Highway Traffic Safety Administration begins a study of crashes using basic data recorders installed in 1,000 volunteer test vehicles.
- **1974:** General Motors starts offering air bags in some models. A simple data recorder monitors the deployment of the air bag.
- **1980:** GM installs a more complex data recorder that can also track any problems with the air bag.
- **1982:** GM and Ford begin putting data recorders in Indy race cars.
- **1984:** GM's new recorder tracks crash speeds and computes severity.
- **1987:** NASA's jet propulsion laboratories and the National Transportation Safety Board recommend that NHTSA start using data recorders in automobiles to evaluate air bags.
- **April 1988:** Various government agencies meet and decide to form a committee to discuss issues involved in the use of data recorders.
- **October 1988:** The subcommittee holds its first meeting with government agencies, car manufacturers and other interested companies.
- **1989:** NHTSA officials say just about any car with an air bag has some type of crash recorder in the air bag, although the data collected varies widely. Almost all GM cars with air bags come with data recorders that record vehicle speed, gas pedal position, rpm and brake use. The recorder keeps data it collected from 5 seconds before a crash until the crash is over.
- **2000:** Florida Atlantic University's Surface Transportation Recorder Study supposed to start.
- **2002:** GM plans to have sophisticated event data recorders in all models.

SOURCE: National Highway Traffic Safety Administration

Who uses boxes

Most automakers don't reveal which of their cars have black boxes because they don't have to. Here's how the four companies that have regularly attended federal meetings on crash recorders stand:

- **General Motors:** Says a or almost all of its cars w air bags have crash recorders.
- **Ford:** Says some of its vehicles have recorders.
- **Chrysler:** Refuses to say whether its vehicles have recorders.
- **Volkswagen:** Says it doesn't use recorders in vehicles but is considering using them.

**Testimony for the Record of the
National Transportation Safety Board
before the
Committee on Commerce, Science, and Transportation
Subcommittee on Surface Transportation and Merchant Marine
United States Senate
Regarding
S. 1501, the Motor Carrier Safety Improvement Act of 1999
September 29, 1999**

Good morning, Chairwoman Hutchison and members of the Committee. We appreciate the opportunity to provide the National Transportation Safety Board's views regarding S. 1501, the Motor Carrier Safety Improvement Act of 1999, introduced by Chairman McCain. We applaud the Committee's continued efforts regarding this important safety issue.

The number of registered large trucks on our nation's highways continues to grow, and with that growth come added concerns about the safety of motor carriers on our roads. In 1997, there were 5,355 fatal crashes - and countless others resulting in serious injuries - involving heavy trucks. Although large trucks accounted for only three percent of all registered vehicles, collisions involving large trucks accounted for nine percent of the 1997 traffic fatalities.

The Safety Board has a long-standing interest in motor carrier safety, and throughout this year, we have addressed the complex safety issues related to heavy vehicle transportation through several venues. Below is a list of current and future Board activity regarding this issue.

- March 1999 -- Issued a highway special investigation report on selective motorcoach issues. This report addressed the following safety issues: busdriver fatigue; Office of Motor Carriers (OMC) safety rating methodology; emergency egress; and passenger safety briefings.
- April 1999 -- Conducted a hearing to review the conditions and causes of truck/bus related crashes and evaluate the effectiveness of Federal and state oversight of the large truck and bus industry. Participants included representatives from truck and bus companies, drivers, owner-operators, associations, and government.
- September 1999 - Conducted a second hearing which focused on advanced safety technology applications for commercial vehicles. Testimony was received from representatives of the U.S. government, the truck and bus industry, technology manufacturers, public advocacy groups, and foreign governments that have already implemented some of the advanced technologies.
- September 1999 - Adopted a report on bus crashworthiness as a result of crucial safety questions regarding bus safety. The Board's report on bus crashworthiness addressed: school bus occupant protection systems; the effectiveness of Federal motorcoach bus crashworthiness standards and occupant protection systems; discrepancies between different Federal bus definitions; deficiencies in the National Highway Traffic Safety Administration's Fatality Analysis Reporting Systems bus ejection data; and the lack of school bus injury data.
- October 1999 -- A third hearing will be held to review the highway transportation safety aspects of the North American Free Trade Agreement (NAFTA).
- January 2000 -- A fourth hearing will be held to address issues related to the effectiveness of the Commercial Driver's License (CDL) program that are being examined as a result of recent highway accidents.

- Spring 2000 - The Board anticipates completion of a special study that will explore intrastate truck operations and their impact on highway safety.

I would now like to comment on three issues addressed in S. 1501: improvements to the CDL program; improved data collection; and protection of data obtained from event recorders.

Improvements in the CDL Program

According to the American Trucking Associations, the trucking industry employs 9.5 million individuals and includes more than 442,000 companies which operate more than 4 million medium and heavy trucks and haul about 6.5 billion tons of freight. Those same trucks travel more than 166 billion miles a year, and are driven by over 8 million CDL holders.

A safety recommendation asking the Secretary of Transportation to develop a national driver license program was first issued by the Safety Board on July 14, 1986, following accidents involving heavy trucks that occurred in October 1982 in Lemoore, California, and July 1984 near Ashdown, Arkansas. Although we have been a strong supporter of the CDL, there are still drivers who should not be behind the wheel of a heavy truck. For example, the Safety Board has recently investigated two tragic motorcoach accidents in which the bus drivers were impaired from either over-the-counter medications or illicit drugs.

On June, 20, 1998, near Burnt Cabins, Pennsylvania, a Greyhound bus on a scheduled trip from New York City to Pittsburgh, Pennsylvania, traveled off the right side of the roadway into an emergency parking area where it struck the back of a parked tractor-semitrailer, which was pushed forward and struck the left side of another parked tractor-semitrailer. This accident resulted in the death of 6 bus occupants. Post-accident toxicological testing of the busdriver revealed that an antihistamine, a decongestant, and tylenol were present in his system. The Board's investigation is examining whether these over-the-counter medications could have resulted in the busdriver's sleepiness.

On May 9, 1999, in New Orleans, Louisiana, a tour bus going from La Place, Louisiana, to Bay St. Louis, Mississippi, departed the right side of the highway, struck the terminal end of a break-away cable guardrail, traveled along a grassy right-of-way, vaulted over a depressed golf cart walkway, collided with the far side of the embankment, and slid forward, upright. The accident resulted in 22 fatalities. The busdriver died in August 1999. At the time of the accident, the driver was under treatment for kidney failure and congestive heart failure, and he was undergoing hemodialysis three times a week. Post-accident toxicological tests revealed marijuana and an over-the-counter antihistamine and decongestant in the busdriver's system.

Mr. Chairman, if there had been a national driver registry of medical providers before the Louisiana bus accident, the driver would not have been licensed because of his medical history, and the 22 fatal passengers may be alive today. We believe the proposal for a national driver registry of medical providers, as proposed in S. 1501, would go a long way to assuring the American public that CDL holders are, and will remain, medically qualified to operate large commercial vehicles on the nation's highways.

Improvements in Data Collection

The second item we would like to discuss is the need to improve data collection. Poor accident data can

preclude the ability to identify transportation safety concerns in a timely manner, lead to poor decisionmaking, and often result in inappropriate utilization of resources.

In November 1998, the Safety Board completed a special investigation of transit bus safety that concluded that the accident data maintained by many Department of Transportation (DOT) administrations, including the Federal Highway Administration (FHWA), do not accurately portray the industry's safety record due to the limitations of each agency's database. There is currently little uniformity in the data collected by the 50 states following highway accidents. As a result, even though the states transmit their data to Federal government agencies, comparative analysis of the causes of accidents between states, or nationwide, is nearly impossible because there are few common data points upon which to base that analysis.

We believe that the direction provided in S. 1501 will improve the quality of commercial vehicle crash data. This will contribute to the overall quality of the information to be gleaned from a database, and will thus lead to better decisions and help prevent the allocation of scant resources to projects that may not bring about improvements.

Protection of Data Obtained from Event Recorders

The third item we would like to discuss is the need for protection of data obtained from event recorders. The need for on-board recording devices has been an issue on the Board's Most Wanted list since May 1997. These devices can be used not only in accident investigation and reconstruction, but also by the trucking industry to identify safety trends, develop corrective actions, and can lead to operating efficiencies.

In May, the Safety Board held an international symposium focusing on recorder devices for vehicles in all modes of transportation. The most frequent concerns raised by stakeholders attending the symposium were the issues of privacy and access to event recorder data.

The Safety Board's request for reauthorization, pending before this Committee, addresses this issue and includes a section regarding withholding of voice and video recorder information for all modes of transportation from public disclosure, comparable to the protections provided for cockpit voice recorders. Industry representatives have advised they are reluctant to use on-board recorders because of privacy issues. Therefore, we believe the lack of statutory protection would limit the acceptance of new recorder technology. However, because current driver paper logs may not be reliable, the Safety Board has issued two recommendations that event recorders be used as a means to electronically monitor commercial vehicle operators' compliance with hours-of-service regulations.

In addition, the proposed Motor Carrier Safety Administration should embrace other technology that can improve safety. Collision avoidance systems, electronic braking systems, and intelligent transportation systems, are available today and can be used to prevent crashes and save lives.

Conclusion

If we are to improve highway safety, it is clear that effective leadership is needed, along with a desire to be more proactive and a willingness to be innovative -- to try new approaches to solving not only the problems at hand, but those we know loom in the future. We believe that S. 1501 will establish a good framework for the DOT and the proposed Motor Carrier Safety Administration to begin the process of

bringing about meaningful change to improve motor carrier oversight.

That completes the Board's statement on this issue, and we appreciate the opportunity to provide our views for the Committee's information.

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